



Accident Investigation and Reporting Procedures Handbook

Accident Investigation and Reporting Procedures Handbook

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This manual is freely distributable to all individuals and organizations involved in safety management and accident prevention within the Department of Defense.

Preface

Overview

This manual is the first installment to a collection of *how-to* safety guides known collectively as the *Safety Management System*. The *Safety Management System* is designed to provide instructional, reference, and operational tools and resources to US Army safety community. The *Safety Management System* includes:

1. Accident Investigation and Reporting Procedures Handbook (This Manual)
2. Safety Managers Guide to Safety Management
3. Hazard Identification and Management
4. Job Hazard Analysis
5. Tactical Safety Manager (TacSafe – a software safety management tool)

The *Accident Investigation and Reporting Procedures Handbook* is designed as a single stop accident investigation resource for US Army aviation and ground accidents. This manual is a compilation of information collected from various resources such as:

1. AR 385-40
2. DA Pam 385-40
3. US Army Safety Center Accident Investigation Guide
4. US Army Aviation Safety Officer (ASO) Course of Instruction
5. Public Law
6. Various resource files from the ASO List Server

The author would like to thank all who freely share information on the ASO List Server for their contributions to improving the US Army Safety Program. Please continue to contribute to this valuable resource. It contains the foundational tools for accident prevention in the Army.

Disclaimer

This manual is designed as a resource tool for general accident investigations with a focus on the US Army accident investigation process. The authoritative source for accident investigations in the US Army is the US Army Safety Center. The author of this manual is in no way associated with the US Army Safety Center nor in any way makes any claims as the authoritative source for accident investigations in the US Army. If discrepancies between this manual and DODI 6055.7, AR 385-40, or DA Pam 385-40 then the information in this manual will be superceded with the information in the above publications.

Table of Contents

| | |
|--|-------------------|
| <i>Preface</i> | <i>iii</i> |
| Overview | iii |
| Disclaimer | iv |
| <i>Table of Contents</i> | <i>v</i> |
| <i>General Guidelines</i> | <i>1</i> |
| Classifying Army Accidents | 1 |
| Accident and Incident Classes | 2 |
| What to Report | 3 |
| Types of Accidents and Incidents | 4 |
| Occurrences Not Constituting an Army Accident | 9 |
| Reportable Accidents | 10 |
| Non-reportable Injuries and Illnesses | 11 |
| Recordable Accidents and Incidents | 13 |
| Civilian Employee Catastrophic Accidents | 14 |
| Safety and Occupational Health Program | 16 |
| Personnel Classifications and Special Cases | 16 |
| Injury and Accident Rates | 18 |
| Accident Investigation | 20 |
| Accident Investigation Boards | 21 |
| Class A and B Accident Investigations | 23 |
| Support of Army Accident Investigations | 25 |
| Accident Scene Preservation | 27 |
| Accident Scene Investigation | 28 |
| Access to Information from Other Investigations | 28 |
| Access to Accident Investigation Board Information | 28 |
| Actions When Criminal Activity is Suspected | 29 |
| Safety-of-Use / Safety-of-Flight Notification System | 29 |
| <i>Initial Actions</i> | <i>31</i> |
| General | 31 |
| Class A Mishap | 31 |
| Class B Mishap | 32 |
| Class C Mishap | 32 |
| Class D Mishap | 33 |
| Class E Mishap | 33 |

| | |
|--|-----------|
| Class F Mishap _____ | 33 |
| Blood and Urine Samples _____ | 34 |
| Mishap Site General Practices _____ | 35 |
| Aviation Accident Flowchart _____ | 36 |
| Ground Accident Flowchart _____ | 37 |
| Initial Arrival Checklist _____ | 38 |
| Initial On-site Action _____ | 38 |
| Notify Appropriate Personnel _____ | 38 |
| Additional On-site Actions (Ensure completed) _____ | 38 |
| Additional Items to Complete (Ensure completed) _____ | 38 |
| Information to Gather and Secure _____ | 38 |
| Information to Gather and Secure (continued) _____ | 40 |
| Notification of Army Accidents or Incidents _____ | 41 |
| Commander's Responsibility _____ | 41 |
| Additional Responsibility _____ | 41 |
| Aviation Class D Accidents and Class E / FOD Incidents _____ | 42 |
| Accidents Occurring in Combat _____ | 42 |
| Wreckage Distribution Diagrams _____ | 45 |
| Accident Photography _____ | 47 |
| The Purposes of Accident Photography _____ | 47 |
| Photographic equipment. _____ | 47 |
| Techniques and Rules of Photographic Coverage _____ | 48 |
| Special Photographs _____ | 49 |
| Photo Captions. _____ | 49 |
| Photographic Checklist _____ | 50 |
| Gathering Data _____ | 51 |
| Human Factor Data _____ | 51 |
| Responsibilities _____ | 51 |
| Witness Interviews _____ | 52 |
| Human Factors Work Group -- Leader Checklist _____ | 55 |
| Human Factors Worksheet _____ | 56 |
| Crew Information _____ | 58 |
| Material Factors Investigation _____ | 61 |
| Material Factors Work Group -- Leaders Checklist _____ | 62 |
| Material Factors Worksheets _____ | 67 |
| Instrument and Controls Setting Worksheet _____ | 68 |
| Analyzing and Reporting Data _____ | 70 |
| Accident Causes _____ | 70 |
| Standards Failure _____ | 70 |
| Support Failure _____ | 71 |
| Training Failure _____ | 71 |

| | |
|---|-----------|
| Leader Failure | 72 |
| Individual Failure | 73 |
| Developing the Analysis Paragraph | 74 |
| Aviation Accident Narrative Details | 78 |
| Preflight Phase | 78 |
| Flight Phase | 79 |
| Post-flight Phase | 79 |
| Human Factors for Aviation Accidents | 81 |
| Personnel Background Information | 81 |
| Personnel Management | 83 |
| Aircraft Suitability | 84 |
| Communications / Air Traffic Services | 84 |
| Navigational Aids | 85 |
| Meteorological Information | 85 |
| Ground Support Services | 85 |
| Crash Survival | 86 |
| Emergency Egress, Survival and Rescue | 86 |
| Witness Investigation. | 86 |
| Special investigation. | 87 |
| Material Factors for Aviation Accidents | 88 |
| Aircraft airworthiness. | 88 |
| Flight Data Recorders | 88 |
| Airframe | 88 |
| Systems | 89 |
| Power Plant | 90 |
| Rotor System or Propeller. | 90 |
| Transmission / Gearboxes and Drive Train | 90 |
| Laboratory analysis | 91 |
| Accident Site Information | 91 |
| Fire | 91 |
| Non-Aviation Accident Narrative Details | 92 |
| Pre-accident Phase (Use tabs to amplify) | 92 |
| Accident Phase. | 93 |
| Post-accident Phase. | 93 |
| Human Factors Investigation for Non-Aviation Accidents | 95 |
| Personnel Background Information | 95 |
| Personnel Management. | 96 |
| Vehicle / System / Equipment Suitability. | 97 |
| Communications. | 97 |
| Environmental Conditions. | 98 |
| Support Services. | 98 |
| Accident Survivability. | 99 |
| Rescue Operations. | 99 |
| Accident Site Information | 99 |

| | |
|---|------------|
| Special Investigation _____ | 99 |
| Witness Investigation. _____ | 99 |
| Materiel Factors Investigation for Non-Aviation Accidents_ | 101 |
| Vehicle/System/Equipment Worthiness. _____ | 101 |
| Systems _____ | 101 |
| Laboratory analysis. _____ | 102 |
| Fire. _____ | 102 |
| Accident Cost Calculations: _____ | 103 |
| Injury and Illness Costs _____ | 103 |
| Damage Costs _____ | 104 |
| Findings and Recommendations _____ | 107 |
| Processing and Command Review of Accident Reports _____ | 109 |
| Reports prepared by USASC _____ | 109 |
| Processing accident reports _____ | 110 |
| Changes to Accident Reports and Request for Extension _____ | 111 |
| HQDA Accident Report Evaluation, Review, and Action _____ | 111 |
| Accident Records _____ | 113 |
| Access to and safeguarding of accident records _____ | 113 |
| Maintaining accident records _____ | 113 |
| Appendix A _____ | 114 |
| Accident Causation _____ | 114 |
| Historical View of Accident Causation _____ | 114 |
| The Heinrich Model of Accident Causation _____ | 115 |
| Modern Accident Causation Model _____ | 116 |
| Countermeasure Avenues _____ | 119 |
| Countermeasures _____ | 120 |
| System Components _____ | 120 |
| Appendix B _____ | 122 |
| Human Factor Analysis _____ | 122 |
| Introduction _____ | 122 |
| Accident Investigation as Accident Prevention _____ | 122 |
| Concept _____ | 123 |
| The 3W Approach _____ | 123 |
| Human Error Approach to Accident Investigation _____ | 124 |
| Human Factors Analysis and Classification System (HFACS) (Shappell/Wiegmann) _____ | 130 |
| Ground and Maintenance Extension of HFACS _____ | 143 |
| Accident Investigation Process _____ | 145 |
| Appendix C _____ | 161 |
| Crash Dynamics _____ | 161 |
| Temperature Conversions _____ | 161 |

| | |
|--|------------|
| Velocity Calculations _____ | 161 |
| Crash Dynamics Calculations _____ | 162 |
| Decelerative Forces _____ | 163 |
| Aircraft Load Factors _____ | 164 |
| Appendix D _____ | 165 |
| Metal Fatigue and Stresses _____ | 165 |
| Stresses and Strains on Aircraft _____ | 165 |
| Examples _____ | 169 |
| Appendix E _____ | 176 |
| Composite Accident Investigation _____ | 176 |
| Responsibilities _____ | 176 |
| Potential Health Hazards: _____ | 177 |
| Army Equipment Containing Composites _____ | 177 |
| Prevention of Personnel Exposure _____ | 178 |
| Personnel Protective Equipment _____ | 178 |
| On-site procedures _____ | 179 |
| Sources of Assistance: _____ | 180 |
| Appendix F _____ | 181 |
| Accident Investigation Kit (Crash Kit) _____ | 181 |
| Appendix G _____ | 183 |
| Security, Marking, and Diagramming _____ | 183 |
| Security of Accident Sites _____ | 183 |
| Marking. _____ | 185 |
| Diagramming. _____ | 186 |
| Appendix H _____ | 187 |
| Electromagnetic Environmental Effects (E³) Checklist _____ | 187 |
| Appendix I _____ | 189 |
| Aviation Night Vision Device (NVD) Accident Reports _____ | 189 |
| Appendix J _____ | 193 |
| Driver Training Checklist _____ | 193 |
| Appendix K _____ | 195 |
| Witness Information Brief _____ | 195 |
| Appendix L _____ | 197 |
| Legal Aspects of Accident Investigation _____ | 197 |
| Accident site: _____ | 197 |
| Autopsy: _____ | 199 |
| Accident investigation reports; _____ | 199 |
| Privileged, Sensitive and Factual Information _____ | 202 |

| | |
|--|------------|
| Relationship _____ | 204 |
| Witness Interviewing _____ | 204 |
| Responses to Subpoenas: _____ | 205 |
| Appendix M _____ | 207 |
| Medical Aspects of Accident Investigation _____ | 207 |
| Requirements and Responsibilities: _____ | 207 |
| Post-accident Responsibilities: _____ | 207 |
| Specimen collection (survivor): _____ | 209 |
| Autopsy: _____ | 209 |
| Considerations of survivability: _____ | 211 |
| Witness interviews: _____ | 213 |
| Appendix N _____ | 215 |
| Bloodborne Pathogens _____ | 215 |
| General Information _____ | 215 |
| Health Risks at an Accident Site _____ | 216 |
| Control and Protection _____ | 217 |
| Appendix O _____ | 222 |
| Command Climate Checklist _____ | 222 |
| Appendix P _____ | 225 |
| Authorized Collateral Board Information _____ | 225 |
| Appendix Q _____ | 227 |
| Evaluating Risk Management _____ | 227 |
| Appendix R _____ | 229 |
| Accident Investigations Involving Ammunition and Explosives _____ | 229 |
| Appendix S _____ | 231 |
| DA Form 7305-R (Telephonic Notification of Aviation Accident) _____ | 231 |
| DA Form 2397-AB-R; Abbreviated Aviation Accident Report _____ | 234 |
| DA Form 2397-R; Statement of Reviewing Officials _____ | 246 |
| DA Form 2397-1-R; Summary _____ | 248 |
| DA Form 2397-2-R; Findings and Recommendations _____ | 259 |
| DA Form 2397-3-R; Narrative _____ | 271 |
| DA Form 2397-4-R; Summary of Witness Interview _____ | 283 |
| DA Form 2397-5-R; Wreckage Distribution _____ | 288 |

| | |
|---|------------|
| DA Form 2397-6-R; Crash Damage Data Details | 291 |
| DA Form 2397-7-R; Maintenance and Material Data Details | 299 |
| DA Form 2397-8-R; Personal Data Details | 303 |
| DA Form 2397-9-R; Injury / Occupational Illness Data Details | 309 |
| DA Form 2397-10-R; Personnel Protective, Escape, Survival, and Rescue Data | 323 |
| DA Form 2397-11-R; Weather and Environmental Data | 337 |
| DA Form 2397-12-R; Fire Data | 340 |
| Appendix T | 343 |
| DA Form 7306-R (Telephonic Notification of Ground Accident) | 343 |
| DA Form 285-AB-R Abbreviated Ground Accident Report | 345 |
| DA Form 285-R; Ground Accident Report | 360 |
| DA Form 285-W-R; Summary of Witness Interview | 375 |
| DA Form 285-O-R; Statement of Reviewing Officials | 379 |
| References | 381 |
| Official Publications | 381 |
| Other Resources Publications | 381 |

General Guidelines

Classifying Army Accidents

The primary mission of a safety program is to prevent accidents. In the event of an accident, this handbook provides guidance for the investigation and reporting of accidents within the US Army. The purpose of this handbook is to supplement AR 385-40 and DA Pam 385-40. Where discrepancies exist between this handbook and the above publications, directives outlined in AR 385-40 and DA Pam 385-40 will be followed. The proponent agency for this manual is the US Army Safety Center (USASC).

Accidents are caused by uncontrolled hazards. The controls are either inadequate, known and not enforced, or not known. Accident causes can be further classified into three basic factors. Factors contributing to an accident consist of environmental conditions, material failures, human errors or any combination of these factors.

Environmental factors are those environmental elements or conditions such as noise, illumination, space, and weather conditions (for example, precipitation, temperature, humidity, pressure, wind, and lightning, and so forth) having an adverse effect on the performance of the individual or equipment so that an accident results or could result. Environmental cause factors can be divided into those which could not have been avoided and those for which precautions could have been implemented to reduce or eliminate its adverse effect on personnel and / or equipment. An environmental deficiency should not be assessed as a causal factor if it was known and could have been avoided before the accident.

A material failure or malfunction is defined as a tangible or intangible element that did not operate as intended or designed and caused, allowed, or contributed to a material failure or malfunction. The inadequacies may come from incorrect design or improper materials. Improper maintenance or incorrect installation would not fall into this category but would instead be considered human error. Once identified, corrective actions can be taken to prevent the probability of similar material failures and malfunctions in the future.

Human cause factors are interactions of man, machine, and environment. In short, a mistake at some level was made. As much as 85% of all accidents involve human error. Regardless of the task involved, the explanation of how it was improperly performed must identify the directive, standard and performance deviated from or not complied with or the lack of such directives or standards.

The goal of an investigation is not only determining the cause of an accident but also to identify controls to prevent future accidents. These controls are then implemented through control mechanism(s) - *standard, training, leader, individual, material*. With this in mind, the investigator(s) should look for accident cause factors that fit into the following categories: Found; Primary Cause, Found; Contributing, Found; Not Contributing but Increasing Severity of Damage / Injuries, or Found; Not Contributing but if left uncorrected could cause an accident in the future.

Accident and Incident Classes

Accident classes are used to determine the appropriate investigative and reporting procedures. Accident classes are as follows:

1. **Class A Accident:** An Army accident in which the resulting total cost of property damage is \$1,000,000 or more; an Army aircraft or missile is destroyed, missing, or abandoned; or an injury and/or occupational illness results in a fatality or permanent total disability.
2. **Class B Accident:** An Army accident in which the resulting total cost of property damage is \$200,000 or more, but less than \$1,000,000; an injury and/or occupational illness results in permanent partial disability, or when three or more personnel are hospitalized as inpatients as the result of a single occurrence.
3. **Class C Accident:** An Army accident in which the resulting total cost of property damage is \$20,000 or more, but less than \$200,000; a nonfatal injury that causes any loss of time from work beyond the day or shift on which it occurred; or a nonfatal occupational illness that causes loss of time from work (for example, 1 work day) or disability at any time (lost time case).
4. **Class D Accident:** An Army accident in which the resulting total cost of property damage is \$2,000 or more but less than \$20,000.
Note. Nonfatal injuries/illnesses (restricted work activity, light duty, or profile) will only be recorded in ASMIS in conjunction with recordable property damage accidents.
5. **Class E Aviation Incident:** An Army incident in which the resulting damage cost and injury severity do not meet the criteria

for a Class A-D accident (\$2,000 or more damage; lost time/restricted activity case). A Class E aviation incident is recordable when the mission (either operational or maintenance) is interrupted or not completed. Intent for flight may or may not exist. An example of a recordable Class E incident is: during a maintenance operational check (MOC) the engine quits. Examples of non-recordable Class E incidents are: chip detector light illumination and the component is not replaced; mission interrupted/aborted because of weather, unless mission is canceled; failure of Fair Wear and Tear (FWT) items found on pre- or post-flight inspection; radio failure where radio is replaced; closing a door found open in flight.

6. **Foreign Object Damage (FOD) Aviation Incident (Also known as Class F incident):** Recordable incidents confined to aircraft turbine engine damage (does not include installed aircraft Auxiliary Power Units (APU)) as a result of internal or external FOD, where that is the only damage. These incidents will be reported using DA Form 2397-AB-R; Check "F" in the "Accident Classification" block.

Note. When appropriate, it is the unit commander's responsibility to ensure that an SF 368, or EIR for Category II, or message for Category I is completed and forwarded to the appropriate agency per AR 750-6, DA Pam 738-750, or DA Pam 738-751. The USASC and the appropriate MACOM will be information addressees on all Category I EIRs and DRs.

What to Report

Commanders will investigate and report, as required, unplanned events (accidents) that result in one or more of the following:

1. Damage to Army property (including Government-furnished material (GFM), or Government-furnished property (GFP), or Government-furnished equipment (GFE) provided to a contractor).
2. Injury (fatal or nonfatal) to on- or off-duty military personnel.
3. Injury (fatal or nonfatal) to on-duty Army civilian personnel, including non-appropriated fund (NAF) employees, and foreign nationals employed by the Army when the accident is incurred while performing duties in a work compensable status.
4. Occupational injury or illness (fatal or nonfatal) to Army military personnel and Army civilian employees, NAF employees, and foreign nationals employed by the Army.
5. Any injury (fatal or nonfatal) or illness to non-Army personnel or any damage to non-Army property as a result of Army operations.

6. Class E aviation incident.
7. FOD incidents (Class F).

Types of Accidents and Incidents

The various types and specific exceptions follow: When two or more types of Army vehicles, such as an Army Motor Vehicle (AMV) and an Army Combat Vehicle (ACV) are involved in an accident, the type of equipment operated by the individual deemed most responsible will determine the accident type. This process is also true for other types of accidents (for example, fire, marine, explosives).

Army Aircraft Accidents

1. **Flight Accidents.** Those accidents in which intent for flight exists, and there is reportable damage to the aircraft itself. Intent for flight begins when aircraft power is applied, or brakes released, to move the aircraft under its own power with an authorized crew. Intent for flight ends when the aircraft is at a full stop and power is completely reduced. (Explosives, chemical agent, or missile events that cause damage to a Army aircraft with intent for flight are categorized as flight accidents to avoid dual reporting.)
2. **Flight-Related Accidents.** Those aircraft accidents in which there is intent for flight and no reportable damage to the aircraft itself, but the accident involves a fatality, injury to air crew, ground crew, or passengers, or other property damage. These accidents are not to be used in the calculation of flight accident rates. (For example: unintentional cutting of a hoist cable; failure, or malfunction of a hoist system to include related equipment; unintentional jettisoning of cargo hook load or external stores.)
3. **Aircraft Ground Accidents.** Injury or property damage accidents involving Army aircraft in which no intent for flight exists, and the engine(s) is/are in operation.

AMV Accidents.

1. An accident involving a motor vehicle may be classified as an AMV accident if the vehicle meets the following criteria:
2. The vehicle is owned, leased (includes General Services Administration (GSA) and Government-owned, contractor-operated vehicles that are under full operational control of the Army; for example, hand receipt or like document), or rented by DA (not an individual), to include Reserve components.
3. The vehicle is primarily designed for over-the-road operation.

4. The vehicle's general purpose is the transportation of cargo or personnel. Examples are passenger cars, station wagons, trucks, ambulances, buses, motorcycles, fire trucks, and refueling vehicles.
5. AMV accidents involve the operation of an AMV when one or more of the following occur:
 - a. Collision with other vehicles, objects, or pedestrians.
 - b. Personnel injuries or property damage due to cargo shifting in or falling from a moving vehicle.
 - c. Personnel injuries occurring in moving vehicles or caused by falling from moving vehicles.
 - d. Accidents occurring when a vehicle is being towed or pushed by another vehicle.
 - e. Other injuries and property damage as described above.
 - f. Accidents involving AMVs not reportable as AMV accidents. The following accidents, although reportable, are not considered AMV accidents. They are reportable under other accident types.
 - 1) Personnel injuries that occur while loading or unloading or mounting or dismounting a motor vehicle that is not moving.
 - 2) Injury or property damage occurring solely from repair or service work. Examples include a vehicle falling off a jack or hoist, a tire explosion during inflation, or a finger cut off by a fan belt.
 - 3) Damage to a properly parked AMV unless it is damaged by another AMV.
 - 4) Cargo directly damaged by environmental factors.
 - 5) Damage to an AMV resulting solely from environmental factors (act of nature).
 - 6) Damage to an AMV being handled as a commodity and not being operated under its own power (excludes towing or pushing accidents).
 - 7) Damage to a moving or parked AMV caused by objects thrown or propelled into it.
 - 8) Damage to an AMV by fire when no AMV accident occurred (where the primary cause of the damage is the fire) when the vehicle was not in operation.

- 9) Malfunction or failure of component parts, if that is the only damage.
- g. Accidents involving a privately owned vehicle (POV) and an AMV in which the AMV driver is not at fault will be reported to the local safety office. However, these accidents will not be recorded in ASMIS unless recordable injuries are incurred by Army personnel or recordable Army damage occurs.

ACV Accidents

These accidents occur incident to the operation of an ACV or combat equipment, such as a tank, self-propelled weapon, armored personnel carrier, or amphibious vehicle ashore. Additionally, injuries and property damage incurred during operation of installed ACV armament systems also qualify as an ACV accident (even if the vehicle is not in motion).

Other Army Vehicle Accidents

These Army accidents involve the operation of an Army vehicle other than those cited in a through c above (for example, aircraft tugs, bulldozers, forklifts, trains, and similar vehicles).

Note. For Army train/rail accidents, additional technical information and assistance is available from:

U.S. Army Aviation and Troop Command,
ATTN: AMSAT-I-MMWR,
DSN 693-9218,
Commercial (314) 263-9218.

Army Operated Vehicle Accidents

Any vehicle accident not identified in other categories (for example, GSA, POV on official business), that is being operated in an official capacity (for example, vehicles on temporary loan (not on a hand-receipt) from another government agency).

POV Accidents

These accidents involve the operation of a motor vehicle (not on official business), privately owned by an individual, other than an Army vehicle that results in:

1. A fatality or lost-workday case injury to Army military personnel, on or off duty.
2. Injury to Army civilian personnel while performing duties in a work compensable status.

Fire

A fire is the unintentional, destructive, and uncontrolled burning of combustible solids, liquids, or gases. Fire accidents involve:

1. **Equipment fires.** At a minimum, units will ensure that all fires are reported to the installation safety office. AR 420-90 requires all fires that cause damage to Army equipment to be reported on DD Form 2324 (DOD Fire Incident Report). This is generally done through the installation fire department, although the unit experiencing the fire may initiate the DD Form 2324. In addition, a completed DA Form 285 will be submitted for recording in ASMIS on those equipment fires and explosions listed below if there is fire damage to:
 - a. Wheeled vehicles or components thereof
 - b. Tracked vehicles or components thereof.
 - c. Aircraft (ground) (excludes those reported on the DA Form 2397-R-series (Technical Report of U.S. Army Aircraft Accident) or DA Form 2397-AB-R.
 - d. Ammunition/explosive fires (production, use, storage, and so forth).
 - e. Missiles, to include subsystems.
 - f. Tents.
 - g. Space heaters.
 - h. Generators.
2. **Facility fires.** A DD Form 2324 will be submitted for fire accidents involving Army-owned or -leased fixed facilities and physical property except where the fire was willfully and maliciously ignited (arson). A DA Form 285 will not be submitted in addition to DD Form 2324 for fires listed below unless those fire accidents result in a lost time or greater injury or occupational illness.
 - a. Family quarters (rent free, mobile home, leased).
 - b. Bachelor enlisted quarters, bachelor officer quarters, barracks.
 - c. Industrial buildings.
 - d. Public assembly buildings and areas.
 - e. Grass, forests, and ranges.
 - f. Warehouse and storage buildings.
 - g. Administrative offices.
 - h. Schools.

- i. Health care and day care facilities.
- j. Vacant structures.
- k. Aircraft hangars.
- l. USAR centers (leased or Government-owned).
- m. Area maintenance support activities (leased or Government - owned).

Personnel Injury--Other.

These accidents involve injury to Army personnel and non-Army personnel as a result of Army operations not covered by any other accident type and injury to off-duty military personnel not covered by any other accident type.

Property Damage--Other Accident

These accidents involve property damage not covered by any other accident type. Drone aircraft/Remotely piloted vehicle (RPV)/Unmanned Aerial Vehicle (UAV) is also in this category. When manned, these will be regarded as aircraft, and accidents will be reported accordingly. When unmanned and operated as a remote controlled aircraft, accidents will be reported using the DA Form 285.

Commercial Carrier/Transportation Accidents

These accidents involve the operation of a commercial motor vehicle, plane, helicopter, train, or vessel (including those under contract to the Army) which transport Army personnel and result in:

- 1. A fatality or lost-workday case injury to Army military personnel, on or off duty.
- 2. Injury to Army civilian personnel while performing duties in a work-compensable status.

Fratricide

Fratricide (also known as Friendly Fire) accidents are special situations that must be reported promptly and thoroughly investigated.

- 1. Fratricide accidents will be reported and investigated as an accident under the provisions of this regulation.
- 2. Fratricide accidents must also be reported and investigated as a collateral investigation under the provisions of AR 385-40 and AR 15-6.

Occurrences Not Constituting an Army Accident

Combat Losses

Damage or injury as a direct result of action by an enemy force is not an Army accident. It is termed a combat loss when one or more of the following conditions exist:

1. Damage, loss, or injury directly caused by enemy action or sabotage.
2. Damage, loss, or injury due to evasive action taken to avoid enemy fire.
3. Loss of equipment in combat or failure of an individual to return from a combat mission when the last known position was in or over enemy territory.

Malfunction or Failure of Component Parts

Malfunctions or failure of parts that are normally subject to fair wear and tear (FWT) and have a fixed useful life less than the complete weapon system or unit of equipment are not considered accidents if the malfunction or failure is the only damage and the sole action is to replace or repair that component part. (The only exception is that all fires or fire damage involving vehicle component parts must be reported.) Although these occurrences do not constitute an Army accident, they may meet the criteria of a Class E aviation incident and should be reported accordingly. When a malfunction or failure of a component part results in damage to another component, this paragraph does not apply.

Expected Damage

Damage to Army equipment or property which is planned, intended, or expected during authorized testing or intentional destruction is not considered an accident. "Planned and intended" means that the damage was specifically required in order to accomplish the objectives of a formally authorized test or was the desired outcome of an authorized destruction or disposal of property. Any unplanned and unintended damage incurred during these operations will be reported as an accident.

Property Damage as a Result of Vandalism, Riots, Civil Disorders, or Felonious Acts Such as Arson

Damage to Army aircraft, vehicles, or any other property which occurs after an aircraft or vehicle has been stolen is not reportable as an accident. Damage to Army aircraft, vehicles, or any other property which occurs when an individual misappropriates an aircraft or vehicle

not authorized to be flown or driven by the individual will not be reported as an accident.

Deliberate Damage to Aircraft or Equipment or Injury to Aircraft or Equipment Occupants

Such damage and injury:

1. Will be reported to the military police (MP) or the Criminal Investigation Division (CID) for investigation.
2. Will also be investigated by a collateral board which will determine responsibility.

Accidents Occurring During the Transportation of Army Materiel by Commercial Carriers

Any accident that occurs during the transportation of Army material by a commercial carrier is not recordable as an Army accident and is the responsibility of that carrier.

Reportable Accidents

All Army accidents and incidents, including occupational illnesses and injuries, regardless of how minor, are reportable to the unit/local safety office.

Injury

An injury must be reported if it results in:

1. A fatality, regardless of the time between the initial injury event and death.
2. Permanent total disability or permanent partial disability.
3. A lost-time case involving time away from work.
4. Restricted work activity.
5. A first-aid injury.

Missing Personnel

Persons who are missing, and presumed dead, as the result of an accident will be reported as fatalities.

Note. This is not related to, nor does it affect, the legal status of missing persons for purposes of casualty reporting notification of the next of kin (NOK).

Occupational Injury/Illness

All Class A through C occupational injury/illness to Army military personnel must be reported on DA Form 285/Abbreviated Ground Accident Report (see app E). Class A through D occupational injury/illness to Army civilian personnel will be reported on Department of Labor (DOL) Forms CA-1, Federal Employees' Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation, CA-2, Notice of Occupational Disease and Claim for Compensation, or CA-6, Official Superiors' Report of Employees' Death. Occupational illnesses will also be reported through medical channels if they result in:

1. A fatality, regardless of the length of the illness.
2. A permanent total disability or permanent partial disability.
3. A lost-time case involving time away from work.
4. A restricted work activity.

Medical Injuries Treatment

An injury requiring treatment at a medical facility that involves prescription drugs or follow-up treatments.

First-Aid Injuries

An injury requiring local first-aid only without any subsequent medical treatment.

Non-reportable Injuries and Illnesses

Non-occupational Injuries/Illnesses

These include injuries/ illnesses associated with non-occupational diseases where the disease itself, not the injury/illness, is the proximate cause of the lost time (for example, a minor cut suffered by a hemophiliac which results in time away from work).

Self-inflicted Injuries

Suicides, suicide attempts, or voluntary self-inflicted injuries (for example, Russian roulette).

Criminal Assault

Injuries that result from criminal activity where there was intent to inflict injury (for example, a fistfight, or a brawl). Injuries due to arson are not recordable unless they are incurred by personnel who are

employed as firefighters, in which case the injury would be an occupational injury.

Prior-service Injuries

Injuries sustained before entry into service or employment, unless they are specifically aggravated by current tenure of service.

Ineffective and Parasitic Diseases and Poisonings

Illnesses caused by specific organisms and toxins (such as food-borne disease), unless the disease is directly related to or the result of the worker's employment. (For example, acute respiratory diseases in employees, particularly in basic trainees, are not Army accidents because of the inability to separate occupational from other environmental causes of these diseases, however, hepatitis in an employee working with hospital instruments or involved in waste disposal processes would be considered an Army accident.)

Strains

When these result from preexisting musculoskeletal disorders or minimal stress or strain (for example, simple, natural, nonviolent body positions or actions such as coughing or sneezing). These are injuries unrelated to accident-producing agents or environments normally associated with active participation in daily work or recreation.

Hospitalization (Observation Only.)

Hospitalization of a person solely for observation and subsequent release.

Escape From Custody

Injuries or fatalities to persons in the act of escaping from or eluding military or civilian custody or arrest.

Death

Death due to natural causes unrelated to the work environment (for example, heart attack during PT).

Adverse Reactions

Adverse bodily reactions resulting directly from the use of alcohol or other drugs not administered by or under the direction of competent medical authority.

Pre-existing Injuries or Illnesses

Such conditions might include back pain/injury experienced by individuals suffering from a degenerative disease as identified/diagnosed by a physician authorized to treat the case.

Recordable Accidents and Incidents

A recordable accident meets the criteria of Class A-D accidents and Class E and FOD incidents, or results in a recorded lost time or fatal injury/illness claim at DOL. Reports are to be sent through channels to USASC for recording in ASMIS per this manual and AR 385-40. The following types are included:

1. Accident Classes A-D, Class E aircraft incident, and Class FOD incidents.
2. Accidents that result in occupational illnesses, injuries, or fatalities to civilian employees of an Army organization while in on-duty status (compensable status) will be submitted through channels to Office of Workers Compensation Programs (OWCP) on appropriate DOL Forms CA-1, CA-2, and CA-6.

Minimum Reporting Requirements for on-Duty Injuries

1. Fatality, permanent total or permanent partial disabling injury. The unit will submit a fully completed DA Form 285 to its designated safety office. For military lost-time cases, the DA Form 285-AB-R will be completed. The safety office will forward the report (see app E) to USASC for recording in ASMIS. For Army civilians, DOL Forms CA-1 and CA-6 must be submitted.
2. Occupational illnesses will be reported through medical channels, and, in addition, will be reported on DA Form 285 (fatality, permanent total, or permanent partial disabling injury), DA Form 285-AB-R, the military lost-time injury, or DOL Forms CA-2 and CA-6 for civilians.

Minimum Reporting Requirements for Military Off-Duty Injuries:

1. The unit will submit a fully completed DA Form 285-AB-R to its designated safety office (the safety office will forward the report to USASC for recording in ASMIS) when either of the following occur:
 - a. Fatal injuries to off-duty military personnel.
 - b. A lost-time or greater non-fatal injury to off-duty military personnel.

2. POV accident reports will include information on type of vehicle involved, seatbelts/helmets, drugs/alcohol, and type of driver training completed.

Required Forms

1. Accidents will be reported on the appropriate forms as discussed below. In overseas commands, locally developed forms, equivalent to the CA forms and approved by OWCP, may be used in lieu of CA forms. Deviations in the use of these forms will be requested from:

HQDA (DACS-SF)
WASH DC 20310-0200.

- a. Ground accidents will be reported on DA Form 285 or DA Form 285-AB-R as prescribed in this regulation and per the instructions on the form. These forms are available through either normal publications channels or in reproducible format in DA Pam 385-40. Detailed instructions for the forms are located in DA Pam 385-40.
 - b. Class A and B flight and flight-related Army aircraft accidents will be reported on DA Forms 2397-R- through 2397-14-R per this regulation and the instructions in DA Pam 385-40. Aircraft ground accidents (regardless of Class), Class C and D flight and flight-related accidents, and Class E and FOD incidents, will be reported on DA Form 2397-AB-R per this regulation. Copies of these reproducible forms are located in DA Pam 385-40.
 - c. Injuries, occupational illnesses and fatalities to DA civilians and direct hire foreign nationals (DHFNs) are reported on DOL Forms CA-1, CA-2, and CA-6.
2. Additional reporting requirements for specific types of accidents are contained in other chapters of this regulation.

Civilian Employee Catastrophic Accidents

This paragraph fulfills the DOD and OSHA requirements for formal notification of this type of accident. A civilian employee fatality or the hospitalization of five or more persons (any combination of Department of the Army (DA) civilian, military, contractor, or public, as long as one DA civilian is involved) from the same occurrence/accident is considered a catastrophic accident. "Civilian employee" is defined in the glossary.

1. The MACOM will notify the USASC telephonically within 24 hours of a death or hospitalization in accordance with the above requirements and this regulation. Telephone numbers are:
COMMERCIAL: (205) 255-3410 / 2660
DSN: 558-3410 / 2660
2. The following additional information will also be provided:
 - a. Social Security Number.
 - b. Job series and title.
 - c. Age of the civilian fatality.
3. Accidents not immediately reportable, but which result in death within six months of the date of the accident, will be reported within 24 hours of the time the organization becomes aware of the death.
4. The MACOM will submit a written summary report of the accident investigation within 30 days of the accident to:
Commander, USASC
ATTN: CSSC-P
Fort Rucker, AL 36362-5363
5. The summary report will contain, at a minimum, the following information:
 - a. Date and time of the accident.
 - b. DOD Component (such as, Army, Navy,) and unit identity.
 - c. Exact location of the accident.
 - d. Personnel involved (Category (employee, public, etc.) and consequences). Include the social security number, job series, title, and age of the civilian fatality or fatalities.
 - e. Description of the operation.
 - f. Description of the accident.
 - g. Standards involved (this item shall be limited to factual information and validated findings): applicable standards (only OSHA or approved alternate agency standards shall be cited, (for example, 1910.26), or any violations of the standards and recommendations (if any) for standards improvement.
 - h. Corrective actions recommended by investigator.
 - i. MACOM point of contact name, address, and phone number.

Safety and Occupational Health Program

Each DA installation is required to maintain a log of occupational injuries and illnesses. The log should provide a quick and current view of workplace safety and health throughout the installation. Automated systems are authorized for this injury/illness log. The following guidance should be used in maintaining these logs:

1. DA installations will enter on an appropriate log (such as OSHA Form 200 Log of Federal Occupational Injuries and Illnesses) each recordable Army injury or occupational illness for the following personnel classifications:
 - a. Civilians covered by FECA.
 - b. Recordable on- and off-duty military injuries.
2. At a minimum, all fatalities, injuries, occupational illnesses/injuries for which DOL Forms CA-1, CA-2, CA-6, DA Form 2397, DA Form 2397-AB-R, DA Form 285, DA Form 285-AB-R is filed with the installation and will be entered into the log within 6 working days of receipt. Civilian injuries and illnesses should be maintained on a separate log from military injuries and illnesses. If a FECA claim results in a scheduled award, it will be logged as a lost-time case.
3. The summary portion of the log, showing the total numbers of injuries, illnesses, and fatalities will be conspicuously posted on all official bulletin boards no later than 45 days after the close of each fiscal year, and will remain posted for at least 30 days.
4. OSHA 2014, Recordkeeping and Reporting Guidelines for Federal Agencies, available from regional OSHA offices, contains a format as well as definitions and guidelines and the revised DOL Forms CA-1, CA-2, and CA-6, with instructions for their completion.

Personnel Classifications and Special Cases

The following personnel classifications are used in reporting Army accidents:

1. Active Army personnel.
2. Army civilian personnel.
3. Army contractor personnel.
4. NAF employees.
5. Other U.S. military personnel. This includes members of other DOD components on full-time duty in active military service.
6. Reserve Officer Training Corps (ROTC).

7. Military dependents. Army family members.
8. ARNG personnel.
9. USAR personnel.
10. Direct hire foreign nationals (DHFN).
11. Foreign Nationals, indirect hire.
12. Foreign Nationals, Korean Augmentation to the U.S. Army (KATUSA) (Korean nationals assigned to the U.S. Army in a military status).
13. Foreign military personnel assigned to Army units.
14. Public. This category includes all persons not specifically covered above.

Reporting of Special Cases that Include:

1. Accidents involving persons in temporary duty (TDY), pass, or leave. Such accidents:
 - a. Will be investigated by the commander of the Army installation located closest to the accident. The appropriate reporting forms will be sent to the safety staff of the command sustaining the loss.
 - b. Will be included in the experience of the activity or MACOM to which the person is permanently assigned. For the military, permanently assigned means on the Standard Installation/Division Personnel System (SIDPERS) unit strength report. For civilians, it means assigned by current SF 50-B (Notification of Personnel Action).
 - c. Involving injury/illness to Army civilians on TDY will be reported by and included in the experience of the MACOM to which the individual is assigned.
 - d. Involving Army and foreign military students on TDY which is scheduled for more than 30 days at an Army school will be reported by and included in the experience of the school's MACOM. Foreign students will be reported at installation-level, but not submitted unless actual loss of Army manpower or materiel resources occurs.
2. Accidents involving military personnel in permanent change of station (PCS) status (with or without leave) or civilians in PCS status. Such accidents will be reported directly to Commander, USASC. The commander of the Army installation closest to the accident will send the report; however, the losing unit will sustain the loss. Accordingly, the identification code of the unit sustaining

the loss will be entered on DA Form 285-AB-R and applicable DOL forms (for civilians). PCS status ends on assignment order reporting date or arrival date, whichever occurs first. A copy of the accident report will be provided to the losing unit.

Injury and Accident Rates

These rates include fatalities, permanent total and permanent partial disability injuries, lost-workday injuries, and/or accidents with property damage meeting the criteria for reporting as Class A-C accidents. To convert the rates obtained in the following formulas (except aviation) to an annual rate for comparison of any time period, multiply the rate obtained by 12 and then divide by the number of months covered.

Injury Rates

1. Active Army military injury rate. The Active Army injury rate is based on the total number of recordable injuries for each 1,000 personnel during a specified period. Injury rates are computed from the following formula: Injuries times 1,000, divided by personnel strength.
2. USAR and ARNG military injury rates. The USAR and ARNG injury rates are the total number of recordable injuries for each 1,000 personnel during a specified period. Injury rates are computed from the following procedure:
 - a. Prorated strengths are computed by subtracting the Active Guard Reserve (AGR) population from the Selected Reserve strength, multiplying the result by 0.1068, and then adding this last result to the AGR population.
 - b. Multiply the number of injuries over a specified time period by 1,000, divide by the prorated strength as computed above.
3. Army Civilian Employee (FECA) injury rate. The Army civilian employee injury rate is the total number of recordable fatal/lost-time injuries for each 1,000 civilian personnel during a specific period of time. Rates are computed from the following formula: number of fatalities/lost-time injuries times 1,000, divided by the Army civilian strength.

Accident Rates

1. Army ground accident rate. This rate is the total number of Army ground accidents (Class A or Class A through C) for each 1,000 personnel over a specific time period. Rates are computed from the following formulas:

- a. Active Army ground accident rate. Number of accidents times 1,000, divided by personnel strength.
 - b. USAR and ARNG ground accident rate. Number of accidents times 1,000, divided by prorated personnel strength.
2. Army aircraft accident rate. The rates for Army rotary wing and fixed wing, and other types of Army aircraft will be computed on the number of aircraft accidents (Class A, B, and/or C) per 100,000 aircraft flight hours. These rates will include flight accidents only.

On / Off Duty Injury and Accident Rates

These rates are computed by multiplying the on/off duty number of injuries/accidents by 1,000, and dividing by the respective Active Army or prorated USAR/ARNG personnel strengths.

Accident Investigation

MACOM commanders will ensure written requirements (for example, regulation, letter of instruction, or an approved supplement) are established to implement the accident investigation program within their command. As a minimum, these requirements will specify:

1. Initial accident notification procedures.
2. Accident site security responsibilities.
3. Installation-level safety office responsibilities.
4. Format and content of orders appointing investigation boards.
5. Authority of board presidents for determining the scope, equipment, technical assistance, and other support necessary to accomplish investigations.
6. Those installation-level organizations required to support investigations and the type of support required.
7. Provisions for command review and briefings.

Investigation Boards

1. The following accidents will be investigated by a board consisting of a minimum of three members. The members should be officers, warrant officers, or DA safety and occupational health specialists/managers/engineers, GS-018/803-11/12/13/14.
 - a. All Class A and B accidents, except those involving off-duty military fatalities/injuries not involving military operations.
 - b. Any accident, regardless of class, that an appointing authority believes may involve a potential hazard serious enough to warrant investigation by a multimember board.
2. Class C aircraft accidents (flight, flight related, or aircraft ground) will be investigated by a board of at least one officer, warrant officer, or DA safety and occupational health specialists/managers/engineers, GS-018/803-9/11/12/13/14 (DA safety professional must directly manage an aviation safety program).
3. When an accident involves Army property and another U.S. Military Service's property, a single joint board may be convened. Board members may be from the two Services involved. Appointment of the members and identification of a senior member as president will be made by mutual agreement between the commanders of the two Safety Centers. For uniform reporting

within each service, the board's proceedings will be recorded in the format required by each service.

4. When an Army aircraft accident involves a civil aircraft or function of the FAA, compliance will be per AR 95-30. Army aircraft accidents that involve aircraft of treaty nations will be investigated IAW AR 385-42.

Other Accident Investigations

The following accidents will be investigated by one or more officers, warrant officers, safety officers/NCOs, supervisors, or DA safety and occupational health specialist/manager/engineer, GS-018/ 803-9/11/12/13/14:

1. Class C accidents. (Excluding aircraft accidents described above).
2. Class D accidents, Class E, and FOD incidents.

Accident Investigation Boards

1. The commander responsible for the operation, personnel, or equipment involved in accidents not investigated by a board of officers or single-officer board will ensure the accident is thoroughly investigated by a qualified safety person.
 - a. Personnel appointed as members will be voting participants. Therefore, members will be from organizations other than the activity or unit incurring the accident and will be screened to ensure that no member of the board has an interest in the accident that may bias the outcome of the investigation.
 - b. Field requests for assistance in investigating an accident may be made to USASC; however, USASC is the sole authority for requesting outside Government, public, or private agency assistance.
 - c. Personnel appointed as advisors are nonvoting participants. Local advisors function to enhance and expedite accident investigation and reporting. Local advisors will normally consist of the safety office POC and a POC from the organization incurring the accident. In cases where equipment involved is unique to one organization or activity at a location, technical personnel from the organization incurring the accident may be used in an advisory status at the discretion of the board president.
2. Personnel of other Services may be used as members of Army accident investigation boards; however, a participant from another Service will not be designated as president of the board. Investigation and reporting will conform to this regulation and DA

Pam 385-40. If assistance is required in obtaining members from other services, the request will be forwarded to USASC.

3. For Class A and B accidents not selected for investigation under CAI procedures, the investigation board will be composed of a minimum of three individuals.
 - a. The president of the board will be a field grade officer (W5 is considered field grade) or a DA civilian, familiar with the type of operation, in the grade of GS-12 or higher. For aircraft accidents, the ranking commissioned Army aviator will be the board president. This officer will be equal to, or senior, in grade to the operator(s) of the aircraft involved in the accident.
 - b. The president of the board will appoint one member to act as recorder. Normally, this will be the board member junior in rank.
 - 1) One member will be a qualified maintenance officer or technician.
 - 2) One member may be a medical officer (or flight surgeon for aircraft accidents) as defined in AR 40-5.
 - 3) One member may be a qualified weather officer if/when weather is a suspected factor.
 - c. A flight surgeon (if a flight surgeon is not available, an Army medical officer may be appointed) is required to be a board member when an aviation accident involves:
 - 1) Personal injuries.
 - 2) Problems (including injuries) associated with personnel protective equipment, egress from the aircraft, MEDEVAC, rescue, or survival.
- Note:** For aircraft accidents, at least two board members will be Army aviators currently on flight status. One of the aviators will be a master or senior Army aviator. At least one of the board members will be qualified in the mission, type, design, and series of the aircraft involved. As deemed necessary by the president of the board, one board member will be a flight surgeon or medical officer. For watercraft accidents, at least one board member will be an Army marine warrant officer. Individuals appointed as board members will not be from the unit which incurred the accident (that is, same company/battery/troop or detachment).
4. In the case of Class C accidents, when more than one individual is on the board, the president will be an Army officer, senior warrant (W4, W5), or a full-time ARNG or USAR technician.
 - a. Personal injuries.

- b. Problems (including injuries) associated with personnel protective equipment, egress from the aircraft, MEDEVAC, rescue, or survival.

Note: For an Aircraft Accident the board president must be a rated aviator or a safety and occupational health specialist/manager/engineer, GS-018/803-11/12/13/14, who directly manages an aviation safety program. In the case of a single member board, he or she must be senior to the members involved in the accident. A flight surgeon--if a flight surgeon is not available, an Army medical officer may be appointed--is required to be a board member when an aviation accident involves:

Class A and B Accident Investigations

Accidents that meet the criteria for either Class A or B require investigation by a board, except off-duty military. Two types of boards may be convened, either centralized accident investigation (CAI) or installation-level accident investigation (IAI). Upon notification of a Class A or B accident, the Commander, USASC will determine whether a CAI or IAI will be conducted. Specific duties and responsibilities of board members are outlined in DA Pam 385-40.

Centralized Accident Investigation

1. USASC will provide the following information to the board appointing authority:
 - a. Name, rank, security clearance, and SSN of USASC board members.
 - b. The special requirements and desired qualifications for local board members (for example, IP, flight surgeon, vehicle technician).
2. The board appointing authority will--
 - a. Appoint a member of the local safety office to serve as POC for the board.
 - b. Assure that preliminary actions required by this regulation are initiated before arrival of the USASC board members. At a minimum, these actions will include, but not be limited to, the following:
 - 1) Administratively and logistically support the investigation board.
 - 2) Fund all support costs other than travel and per diem costs of USASC personnel and those other Government, public,

or private agency personnel specifically requested by USASC to provide assistance.

- 3) Secure accident scene and take action as required.
- 4) Obtain copies of personnel, medical, and training records (to include OF 346 (U.S. Government Motor Vehicle Operator's Identification Card) and DA Form 348 (Equipment Operator's Qualification Record Except Aircraft), if appropriate) for all personnel directly involved in the accident.
- 5) Identify and notify local board members.
- 6) Publish orders appointing investigation board.
- 7) Confirm personnel security clearances as necessary and obtain any special clearances necessary for access to the accident scene by all board members.
- 8) Provide logistical support to include equipment to recover wreckage and resources necessary to ship components to appropriate Army depot or lab for tear-down analysis, and arrange for special transportation such as tactical vehicles or aircraft, if required, to transport the board members to the accident scene.
- 9) Obtain the following witness information: name, rank, unit, and telephone number.
- 10) Obtain Serious Incident Report (SIR), MP, and CID reports, if completed.
- 11) Obtain name of medical officer conducting autopsy and the date, time, and location it will be/was performed and results. Obtain a 1:50,000 tactical map that includes accident site.
- 12) Obtain directives that pertain to the operation that resulted in the accident.
- 13) Obtain weather statements (signed by forecaster).

Installation-level Accident Investigation

1. The appointing authority will appoint on orders a board consisting of three or more members to investigate all Class A and B accidents except those:
 - a. Investigated by USASC accident investigation boards.
 - b. Involving only an off-duty fatality/injury.

2. The appointing authority will ensure an in-depth investigation is performed by a board of any accident designated by HQDA or a MACOM.
3. In addition to the above requirements, the appointing authority may elect to conduct IAI (board mandatory or board optional) of any type of accident.
4. The following personnel may serve on Army accident investigation boards:
 - a. Army officers or warrant officers (Army aviators for aircraft accidents).
 - b. DA safety and occupational health specialist/manager/engineer, GS-018/803-11/12/13/14 (for aircraft accidents, one who directly manages an aviation safety program).
 - c. Full-time technicians who hold current federally recognized officer or warrant officer status.
 - d. DOD medical officers or DOD contracted medical officers (flight surgeons are preferred for aircraft accidents).
 - e. Qualified maintenance personnel.
 - f. DOD weather officers.
 - g. Any other personnel approved by Commander, USASC.

Support of Army Accident Investigations

Army medical treatment facility commanders will support accident investigations as required by accident investigation board presidents. This will include, but not be limited to, the following:

1. Evaluating human and environmental factors that contributed to the accident.
2. Providing medical, dental, and medical service corps personnel such as flight surgeons, radiologists, pathologists, dentists, industrial hygienists, and psychiatrists to serve as members or advisors to accident investigation boards.
3. Performing biochemical testing of personnel involved in or contributing to a Class A, B, or C aviation accident, or when deemed appropriate by the commander or physician. Consult with the Armed Forces Institute of Pathology (AFIP):
Commercial: (202) 576-3232
DSN: 291-3232
4. Performing physical examinations of surviving accident victims (per AR 40-501, paragraph 10-26 g(3)).

5. Autopsies on the remains of air crewmembers are mandatory (per AR 40-21). In other cases, the Armed Forces Medical Examiner (AFME) may authorize an autopsy in accordance with DOD Directive 6010.16 and AR 40-57. This may be done where the Federal Government has exclusive jurisdictional authority, and where the circumstances surrounding the death are suspicious, unexpected, or unexplained. This includes unnatural or violent deaths resulting from known or suspected accident; that is, deaths specifically resulting from vehicular, aircraft, vessel, or other aviation/ground accidents. Additionally, pursuant to AR 40-2, the Army Medical Treatment Facility (MTF) commander may direct an autopsy when it is considered necessary for the protection of the welfare of the military community to determine the true cause of death or to secure information for the completion of military records. In cases where the accident investigation board concludes that an autopsy is necessary, consistent with the above guidelines, the Commander, USASC, will consult with the MTF commander nearest to the scene of the accident or where the body is located. In other cases, consent of the next of kin (NOK) is required in accordance with AR 40-2.
 - a. When possible, autopsies should be performed by AFIP.
 - b. If AFIP personnel cannot perform an autopsy, it will be performed by personnel in the following order of precedence:
 - 1) Military forensic pathologist.
 - 2) Army pathologist or civilian forensic pathologist.
 - c. The individual conducting the autopsy will consult with the staff of the Office of the Armed Forces Medical Examiner, AFIP, by calling:
Commercial: (202) 576-3232 / 3233 / 3234
DSN: 291-3232.
6. Assisting in obtaining results of autopsies conducted by civilian authorities.
7. Conducting detailed external examinations (to include photographs) and full body x-ray examinations. Samples of blood, urine, and other body fluids of deceased accident victims will be obtained for laboratory testing when permission for an autopsy is refused.

The Army Provost Marshal Office

The Army Provost Marshal Office (PMO) will support investigations as required. This support will include providing accident information

from DA Form 3946 (Military Police Traffic Accident Report) and daily blotters.

Installation Organizations

All installation organizations (for example, Director of Industrial Operations (DIO), and Director of Engineering and Housing (DEH)) will support accident investigations as required.

Accident Scene Preservation

A concerted effort is required by all to ensure that each group of investigators is able to collect the information and evidence required to properly conduct its investigation.

1. When the situation permits preservation of the accident scene, only those actions necessary for rescue or recovery of victims and the initial on-site investigation by MP/CID will be allowed. Whenever possible, photographs of the location of victims should be made before the victims are moved. Access will be restricted to those commanders and personnel directly involved in investigating the accident. Before the arrival of the accident investigation board at the accident site, MP/CID personnel should remove only those items of evidence which would be destroyed by time or the elements. During the on-site investigation, the safety board will be accompanied by MP/CID personnel who know the nature and location of evidence removed prior to the board's investigation. The board should also be assisted by personnel who directed the rescue operations and who can discuss damage to or movement of wreckage which occurred during the rescue operation.
2. When the situation does not permit preservation of the accident scene, MP/CID personnel will remove all items of evidence needed for their investigation. Photographs of items before they are collected will be made whenever possible. All components, wreckage, and debris that must be moved will be stored in a secure area and guarded until released by the board president. Personnel involved in the recovery operation and knowledgeable of the resulting damage to the wreckage will be available during the accident investigation board's preliminary inspection of the wreckage. The appointing authority will ensure that photos are taken and a sketch of the scene is made with sufficient detail and measurements to allow a scale drawing to be made. All wreckage, damage, and ground markings incident to the accident will be identified and photographed before measurement and cleanup of the accident scene. The sketch and photographs will be provided to the president of the board as soon as possible after his or her arrival.

3. The accident investigation board will be allowed to inspect physical evidence collected by MP/CID personnel. The board president is responsible for ensuring that no member of the board takes any action that would destroy the evidence or would compromise the legal chain of custody of those items.

Accident Scene Investigation

Procedures for accident scene investigation are contained in this manual and DA Pam 385-40.

Access to Information from Other Investigations

The accident investigation board will have access to all evidence, photographs, and witness statements collected by MP/CID investigators. The accident investigation board will also have access to all personnel and medical records of personnel involved in the accident and maintenance records on the equipment involved in the accident. If evidence is forwarded to CID laboratories for analysis, the board president will be provided a copy of the laboratory report. Whenever possible, CID personnel will advise the board president of laboratory determinations which may be received from the laboratory by telephone. The board president may determine that additional information is necessary for the investigation. When this occurs, the board president will request additional analysis by the laboratory. The results of the additional testing are considered common source factual data available for use by all investigators.

Access to Accident Investigation Board Information

1. Other Army-authorized investigators will be given access to:
 - a. Reports received pursuant to submission of equipment to Army depots for tear-down and analysis.
 - b. Command-directed fitness-for-duty examinations.
 - c. Official records on personnel and equipment involved if not available from other sources.
 - d. Photographs of the accident scene.
 - e. Witness lists (on request).
2. Other investigators will not be given access to:
 - a. Witness statements taken by board members.
 - b. Preliminary or final board findings and recommendations.
 - c. Recordings/transcripts of intra-cockpit communications.

3. For all Classes of accidents, where it is applicable, the accident investigation officer or the president of a board of officers should:
 - a. Obtain the name and unit address of the collateral investigation officer or board president.
 - b. Provide the collateral investigation officer or board president with all factual material considered in the accident investigation.

Actions When Criminal Activity is Suspected

1. If evidence of criminal activity (other than negligence, dereliction of duty, or disobedience of an order), is discovered during the initial investigation, by either MP/CID or the accident board, the board president will be notified immediately. After notification / consultation with the Commander, USASC, and the local commander, the board president will discontinue the investigation if no further need is present. If the accident investigation does continue, it will be secondary to MP or CID investigations insofar as access to witnesses, accident scene, and evidence is concerned.
2. If, during the investigation, the board discovers evidence of criminal activity (other than negligence, dereliction of duty, or disobedience of an order), the board president will provide the following to MP/CID investigators
 - a. If the evidence is physical or is a common source item, MP/CID investigators will be notified. The evidence will be surrendered to MP/CID personnel, and the board members will provide the documents necessary to establish the chain of custody.
 - b. If the evidence is based upon witness statements obtained on a promise that the information would be used within DOD only for accident prevention purposes, the board president will provide a list of personnel interviewed and copies of all common source materials. The board president will not discuss individual statements or specific comments which led to the board's suspicion of criminal activity.

Safety-of-Use / Safety-of-Flight Notification System

The findings of an accident board may identify a safety hazard or hazards which needs immediate action to prevent the recurrence of a similar accident. The board president or accident investigator would need to contact the system Program Manager (PM) and the USASC

DSN: 558-3650, ground

DSN 558-3262, air

to discuss the hazard and then complete a Category I EIR/DR to energize the Ground Safety Notification System (Safety-of-Use) or the Safety-of-Flight System. Further instructions and guidance for the Ground Safety Notification System are contained in AR 750-6; for Safety-of-Flight they are located in Chapter 6, AR 95-1.

Initial Actions

General

The safety and well being of individuals involved in an accident is the primary consideration when arriving at an accident site. Once the health and welfare of these individuals have been accommodated, initial arrival personnel shall use the “**Initial Actions Checklist**” for remaining site procedures. Listed below are some general guidelines for initial actions at accident sites.

Class A Mishap

1. INITIATE THE FOLLOWING:
 - a. Insure all personnel involved receive medical treatment as soon as possible.
 - b. Secure the accident site.
 - c. Initiate the notification process.
 - d. Complete the Accident/Incident Worksheet Data listed in Tab A.
 - e. All crewmembers are medically grounded until cleared by a flight surgeon.
 - f. As soon as possible after mishaps, all crewmembers or vehicle operators will report to the nearest military medical facility (if available) for medical evaluation and blood and urine testing. Blood and urine samples must be handled on a Chain of Custody Form 1323. Contact supporting medical personnel for assistance with blood and urine testing.
 - g. A post mishap flight evaluation is required.
 - h. An accident investigation board from the Safety Center will be appointed to investigate the mishap.
 - i. Take pictures of the mishap if a camera is available.
2. DO NOT MOVE THE AIRCRAFT UNTIL AUTHORIZED TO DO SO BY THE INVESTIGATION BOARD OR THE CHAIN OF COMMAND.

Class B Mishap

1. INITIATE THE FOLLOWING:
 - a. Insure all personnel involved receive medical treatment as soon as possible.
 - b. Secure the accident site.
 - c. Initiate the notification process.
 - d. Complete the Accident/Incident Worksheet Data listed in Tab A.
 - e. All crewmembers are medically grounded until cleared by a flight surgeon.
 - f. As soon as possible after mishaps, all crew members or vehicle operators will report to the nearest military medical facility (if available) for medical evaluation and blood and urine testing. Blood and urine samples must be handled on a Chain of Custody Form 1323. Contact Supporting medical personnel for assistance with blood and urine testing.
 - g. A post mishap flight evaluation is required.
 - h. An accident investigation board will be appointed IAW AR 385-40 in event the Safety Center declines to investigate.
 - i. Take pictures of the mishap if a camera is available.
2. DO NOT MOVE THE AIRCRAFT UNTIL AUTHORIZED TO DO SO BY THE INVESTIGATION BOARD OR THE CHAIN OF COMMAND.

Class C Mishap

1. INITIATE THE FOLLOWING:
 - a. Insure all personnel involved receive medical treatment as soon as possible.
 - b. Secure the accident site.
 - c. Initiate the notification process.
 - d. Complete the Accident/Incident Worksheet Data listed in Tab A.
 - e. As soon as possible after mishaps, all crew members or vehicle operators will report to the nearest military medical facility (if available) for medical evaluation and blood and urine testing. Blood and urine samples must be handled on a Chain of Custody Form 1323. Contact Supporting medical personnel for assistance with blood and urine testing.

- f. A post mishap flight evaluation is conducted at the discretion of the commander.
 - g. Take pictures of the mishap if a camera is available.
 - h. A one man investigation board will be appointed IAW AR 385-40.
2. DO NOT MOVE THE AIRCRAFT UNTIL AUTHORIZED TO DO SO BY THE CHAIN OF COMMAND.

Class D Mishap

1. INITIATE THE FOLLOWING:
- a. Secure the site if needed.
 - b. Initiate the notification process.
 - c. Complete a DA Form 2397-AB-R (aviation).
 - d. Take pictures of the mishap if a camera is available.
2. DO NOT MOVE THE AIRCRAFT UNTIL AUTHORIZED BY THE CHAIN OF COMMAND.

Class E Mishap

1. INITIATE THE FOLLOWING:
- a. Complete a DA Form 2397-AB-R.
 - b. Take pictures of the mishap if a camera is available.
 - c. When appropriate ensure that an SF 368 (QDR), EIR for category II, or message for category I mishaps is completed and forwarded to the appropriate agency IAW DA PAM 738-750 or DA PAM 738-751.
2. If, during the landing phase of a forced or precautionary landing, additional damage to the aircraft is incurred, an investigation may be required IAW the criteria for Class A, B, and C mishaps.

Class F Mishap

1. INITIATE THE FOLLOWING:
- a. Complete a DA Form 2397-AB-R. Check "F" in the "Accident Classification" block.
 - b. When appropriate ensure an SF 368 (QDR) and forward to the appropriate agency IAW DA PAM 738-750 or DA PAM 738-751.

Blood and Urine Samples

1. DODI and AR 385-40 require routine toxicological examinations for Class A-C aviation accidents or when deemed appropriate by the commander.
2. Procedures for taking specimens:
 - a. Use a non-alcoholic, iodine based wipe for skin preparation.
 - b. Collect specimens as soon after the accident as practical, preferably within 12 hours. Do not delay obtaining the appropriate blood/urine specimens pending arrival of the flight surgeon.
 - c. All specimen collection must be under direct visual supervision of medical personnel.
 - d. Military personnel drawing the specimens are responsible to begin the chain-of-custody. If only civilian medical personnel are present and they are unwilling or unable to secure the specimens, the senior military person present establishes documented physical control of the specimens and ensures chain-of-custody.
3. The following amounts need drawn:
 - a. **Blood**
 - 1) Three (3) 7ML NaF; gray-top tubes(total to AFIP 14-20ml)
 - 2) Three (3) 7ML EDTA; purple-top tubes(AFIP 14-20ml)
 - 3) Two (2) Clot(spun or unspun);red-top tubes(AFIP 5-10ml)
 - b. **Urine**
 - 1) One (1) 50-70ML sample(no preservative)(all to AFIP)
4. **After collection, all samples must be labeled with the name and SSN of the individual.**
5. One tube of each blood sample is stored locally until AFIP testing is complete. The accident investigation board will determine its disposition. Forward the entire urine sample, even if it is less than the optimal 50-70 ML.
6. Mail specimens to the following address IAW AFIP instructions.
See the Senior Medic for AFIP packaging instructions.
7. Mailing address:

Armed Forces Institute of Pathology
Attn: Division of Forensic Toxicology
Building 54

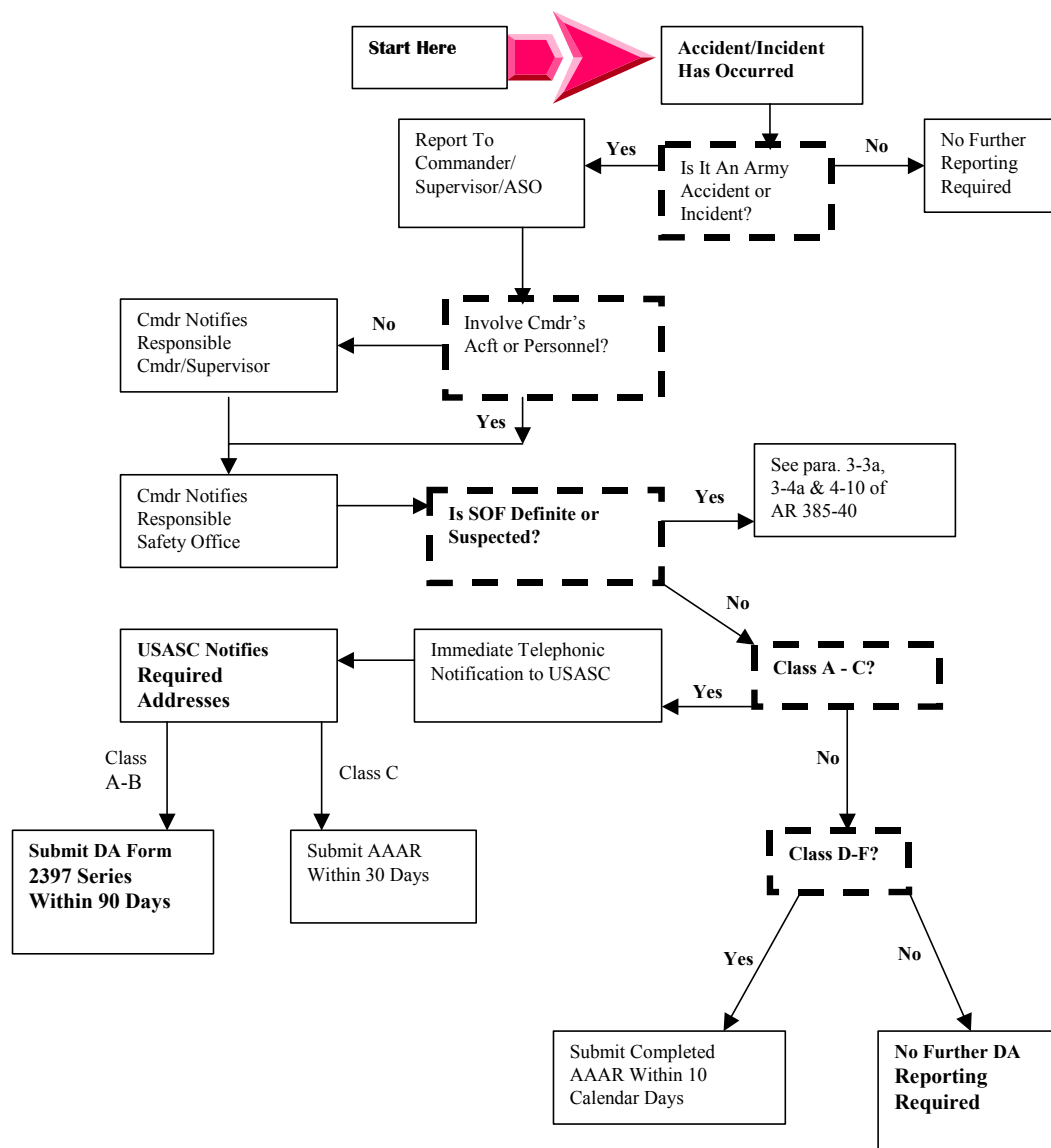
6825 16th Street, NW
Washington, DC 20306-6000

Mishap Site General Practices

1. Remain outside secured area until site photography is completed and cleared into area by board president or material factors group leader.
2. Do not move (or touch) any item (parts, pieces, controls, etc.) or disturb ground scars or marks until properly documented and until the site is released by the investigator in charge.
3. Systematically record instrument readings, control positions, switch positions, avionics equipment settings as soon as possible.
4. Systematically inventory aircraft parts / components to determine if all are accounted for.
5. Determine if engineer support is required for wreckage distribution diagram preparation.
6. Following the board's viewing of the accident site, data collection will continue as directed by the work group leaders.
7. Keep an open mind; don't speculate or draw conclusions. Gather facts and data, then analyze.
8. Utilize instrument work sheet

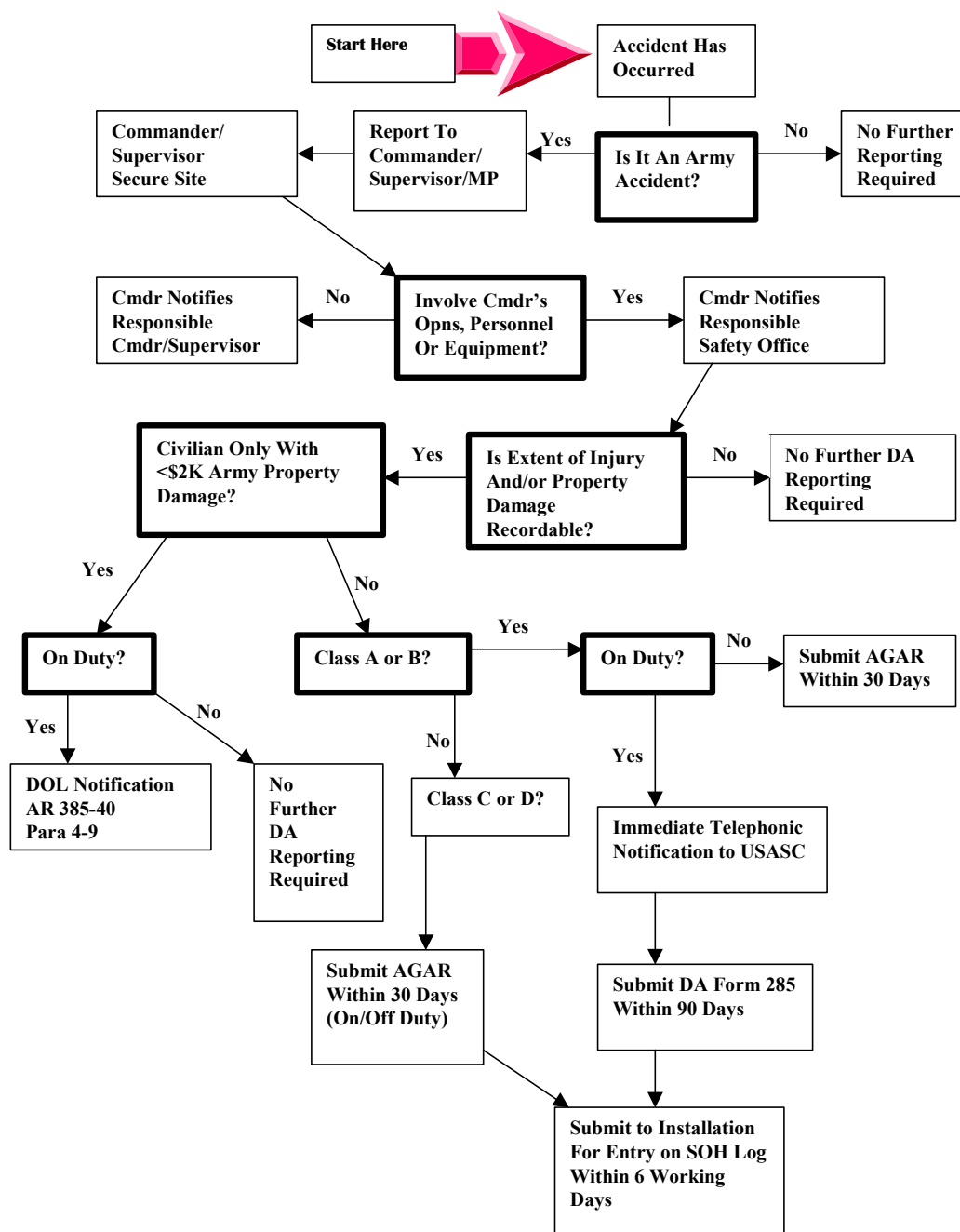
Aviation Accident Flowchart

The following chart should be used to help provide guidance for determining procedures to follow in the event of an aviation mishap.



Ground Accident Flowchart

The following chart should be used to help provide guidance for determining procedures to follow in the event of an aviation mishap.



Initial Arrival Checklist

Initial On-site Action

- ☐ Secure Accident Site.
- ☐ Witness information:
 - ☐ Name
 - ☐ Telephone number
 - ☐ Summary statements
- ☐ Photographs

Notify Appropriate Personnel

- ☐ Notify command / USASC using the DA Form 7305 / 7306 R

Additional On-site Actions (Ensure completed)

- ☐ Oil / Fuel / Hydraulic Samples
 - ☐ Oil analysis records and samples.
 - ☐ Fuel analysis records and samples.
- ☐ Survey of mishap site / wreckage (wreckage diagram).

Additional Items to Complete (Ensure completed)

- ☐ Medical Tests
 - ☐ Blood & urine samples. (*within 2 hours if possible*)
 - ☐ Tissue samples.
 - ☐ Lactic acid (*fatalities only*)
- ☐ Aircraft Recovery Team.
- ☐ Weather observation at time of mishap.
- ☐ Estimated cost of damage (ECOD).

Information to Gather and Secure

- ☐ Mishap Flight Data
 - ☐ Flight plan or log.
 - ☐ Weight and Balance

- ☐ Weather Reports
- ☐ ATC tapes if applicable.
- ☐ PPC
- ☐ Briefing forms / data
- ☐ Aircraft Records
 - ☐ Aircraft Logbook
 - ☐ Aircraft Weight and Balance File
 - ☐ Aircraft 6 - month file
 - ☐ Aircraft Historical Records
 - ☐ Inventory of Aircraft
- ☐ Crew Members
 - ☐ Individual flight records
 - ☐ Individual Maintenance / technical manual records
 - ☐ Individual personnel record(s)
 - ☐ Individual medical records / autopsy results
- ☐ Organization and parent organizations SOPs to include:
 - ☐ Training.
 - ☐ Safety.
 - ☐ Maintenance.
 - ☐ Quality Control
 - ☐ Pre-Accident Plan
 - ☐ Crew endurance
 - ☐ Crew selection.
- ☐ Directives / policy letters / supplements to regulations that pertain to:
 - ☐ That particular operation.
 - ☐ Assignment of tasks / missions.
 - ☐ US Army Flight Regulations.
 - ☐ Training manuals.
- ☐ Safety meeting minutes / council meeting minutes (if applicable)
- ☐ 1:50,000 map which includes location of accident site.

Information to Gather and Secure (continued)

- ☐ -10 Operators Manual
- ☐ Checklist.
- ☐ Maintenance / technical manual
- ☐ Parts “P” Manual
- ☐ Monthly maintenance report
- ☐ Operations information.

Notification of Army Accidents or Incidents

Persons involved in, or aware of, an accident will report it immediately to the commander or supervisor directly responsible for the operation, materiel, or person(s) involved.

Commander's Responsibility

The commander who first becomes aware of any Class A or B Army accident or Class C Army aviation (flight, flight related, or aircraft ground) accident will, through their existing chain-of-command, immediately notify:

1. The immediate commander of all personnel involved.
2. Commander, USASC by telephone
3. DSN: 558-2660 / 3410
4. Commercial: (205) 255-2660 / 3410
 - a. Ground accidents. At a minimum, notification will include the information on DA Form 7305-R, Worksheet for Telephonic Notification of Ground Accident (This form will be locally reproduced on 8-1/2 X 11-inch paper. A copy for reproduction purposes is located at the back of this regulation.).
 - b. Aviation accidents. At a minimum, notification will include the information on DA Form 7306-R Worksheet for Telephonic Notification of Aviation Accident (This form will be locally reproduced on 8-1/2 X 11-inch paper. A copy for reproduction purposes is located at the back of this regulation.).
5. Immediate telephonic notification of accidents will be followed by CAI or Installation-level Accident Investigation (IAI) completion of DA Form 285 or DA 2397-R-series forms for Class A and B accidents and DA Form 2397-AB-R for Class C aviation accidents per this regulation.

Additional Responsibility

1. If Safety-of-Use and Ground Precautionary Message information is identified, notify USASC immediately by telephone or other means. Instruction and guidance for Safety-of-Use and Ground Precautionary Messages can be found in AR 750-6.
2. DA Forms 285-AB-R will be submitted for all ground Class C and D accidents within 30 calendar days of accident occurrence. No follow-up is required unless new information is discovered which

relates to Safety-of-Use, changes the accident classification, or there are significant changes in the information already submitted.

Aviation Class D Accidents and Class E / FOD Incidents

1. If Safety-of-Flight information is identified, notify USASC immediately by telephone or other means.
2. DA Forms 2397-AB-R will be submitted for all aviation Class D accidents and Class E and FOD incidents within 10 calendar days of the accident/incident occurrence. No follow-up is required unless new information is discovered which relates to Safety-of-Flight, changes the accident classification, or there are significant changes in the information already submitted.

Accidents Occurring in Combat

Notification and reporting procedures for Class A and B accidents will be per other sections of this regulation unless the senior tactical commander determines that the situation, conditions and/or time does not permit normal investigation and reporting. Notification and reporting procedures for Class C and D accidents and Class E and FOD incidents will be per other sections of this regulation. The only exception is that time for submission of DA Form 285-AB-R for ground Class C and D accidents is extended to within 30 calendar days of the accident occurrence.

1. Authority to waive normal investigation and reporting procedures for Class A and B accidents is delegated to the senior tactical commander at the level determined appropriate by the MACOM, Theater Army, or equivalent level. Whenever possible, normal investigations should be conducted on all accidents with potential Army wide impact (for example, materiel failure accidents). In cases in which normal investigation and reporting will not be performed, DA Form 285-AB-R or DA Form 2397-AB-R will identify that fact and the name and rank of the official who authorized the waiver.
2. Notification will be immediate and by radio-teletype message (via Defense Data Network (DDN) or telephone to the USASC designated contact (USASC Forward or Rear). The notification will include as much of the information required by the telephonic worksheet as can be determined.
3. A completed DA Form 285-AB-R or DA Form 2397-AB-R must be submitted as soon as conditions permit, not later than within 30 calendar days, and will serve as the official accident report. No follow-up DA Form 285 or DA Form 2397-R-series is required.

4. USASC Accident Investigation Teams deployed into a combat zone for Army accident investigation purposes will be attached (for all administrative and logistical support) to the highest level of Army command having responsibility for theater.

Table 1

| AVIATION ACCIDENTS Notification & Reporting Requirements & Suspense | | | | | |
|--|---|---------------------------------|--|---|--|
| Accident Class | Peacetime | | | Combat* | |
| | Notification | Reporting | | Notification | Reporting |
| | Telephonic Worksheet | DA Form 2397 | AAA Report | Telephonic Worksheet | AAA Report |
| A | Immediate - To USASC (telephonic notification - no hardcopy required) | (CAI / IAI) 90 Calendar days | Aircraft ground accidents only - 30 days | Same as peacetime to USASC or safety rep. | (Only when commander determines DA Form 2397 investigation / report not feasible) submit as soon as conditions permit, not to exceed 30 days |
| B | Immediate - To USASC (telephonic notification - no hardcopy required) | (CAI / IAI) 90 Calendar days | Aircraft ground accidents only - 30 calendar days | Same as peacetime to USASC or safety rep. | (Only when commander determines DA Form 2397 investigation / report not feasible) submit as soon as conditions permit, not to exceed 30 days |
| C | Immediate - To USASC (telephonic notification - no hardcopy required) | N/A | 30 calendar days | Same as peacetime to USASC or safety rep. | Same as peacetime |
| D | N/A (unless SOF issue) | N/A | 10 calendar days | Same as peacetime | Same as peacetime |
| E | N/A (unless SOF issue) | N/A | 10 calendar days | Same as peacetime | Same as peacetime |
| F | N/A (unless SOF issue) | N/A | 10 calendar days | Same as peacetime | Same as peacetime |
| Submission Methods | Class A-C Telephonic (Immediate) Class D, E, F - if SOF | Mail | Typed or hand printed AAA reports by mail, fax, or message format. | Same as peacetime | Same as peacetime |
| * Only when the senior commander determines that the situation, conditions, and / or time does not permit normal peacetime investigating and reporting | | | | | |

Table 2

| GROUND ACCIDENTS Notification & Reporting Requirements & Suspense* | | | | | |
|---|--------------------------|----------------|---------------------|--------------------------|---|
| Accident Class | Peacetime | | | Combat ² | |
| | Telephonic Worksheet | AGAR | DA Form 285 | Telephonic Worksheet | AGAR |
| A | Immediately ¹ | Not Required | IAI / CAI - 90 days | Immediately ¹ | As Time permits (not to exceed 30 days) |
| B | Immediately ¹ | Not Required | IAI / CAI - 90 days | Immediately ¹ | As Time permits (not to exceed 30 days) |
| C | Not Required | Within 30 days | Not Required | Not Required | As Time permits (not to exceed 30 days) |
| D | Not Required | Within 30 days | Not Required | Not Required | As Time permits (not to exceed 30 days) |
| <i>Off Duty</i> | | | | | |
| A | Immediately ¹ | Not Required | Not Required | Immediately ¹ | As Time permits (not to exceed 30 days) |
| B | Immediately ¹ | Not Required | Not Required | Immediately ¹ | As Time permits (not to exceed 30 days) |
| C | Not Required | Within 30 days | Not Required | Not Required | As Time permits (not to exceed 30 days) |
| D | Not Required | Within 30 days | Not Required | Not Required | As Time permits (not to exceed 30 days) |
| <p>Note:</p> <ol style="list-style-type: none"> 1. USASC must be notified immediately by phone: DSN 558-2660 / 2539 / 3410. 2. Only when the senior commander determines that the situation, conditions, and / or time does not permit normal peacetime investigating and reporting. <p>* Army civilian injury only accidents should be reported on appropriate Department of Labor forms.</p> | | | | | |

Wreckage Distribution Diagrams

The wreckage diagram details the location of all the pieces of wreckage found at an accident site. Additionally, the wreckage diagram catalogs witness location, ground scars, and direction of travel / flight path of the equipment involved in the accident. This information is drawn to scale using a graph ruled format. When possible, use DA Form 2397-5-R to record the wreckage diagram.

Orient the flight path / direction of travel (at instant of initial impact) along the horizontal or vertical axis of the grid and show direction of true north, oriented to the top of the page, with an arrow. This procedure eases the task of locating the equipment component(s) laterally and longitudinally along the crash path. A suggested scale of 40 feet per inch is recommended. Actual scale used is to be recorded. Show wind direction with an arrow pointed in the direction of the wind flow. Identify wind direction in degrees and velocity in knots.

Record the following information to scale on a grid ruled format:

1. Location of all major and significant equipment components.
2. Obstacles struck by equipment in crash sequence; i.e., structures, trees, power lines, etc.
3. Terrain marks made by the equipment in crash sequence; i.e., earth gouge length, width, and depth, snow or earth pushed in front of aircraft, etc.
4. A profile view of the wreckage distribution, especially if the impact occurs on sloped terrain or on obstacles in the accident path.
5. If necessary, use more than one form to show the profile view of the crash sequence. (For aircraft accidents, this is especially important if the initial impact occurs on a tall tree or power line where a large vertical axis is needed.)
6. For midair collisions or multiple vehicular collisions, construct a composite diagram (wreckage distribution of both pieces of equipment superimposed on the same plot).
7. For a widely scattered wreckage distribution, use a larger grid sheet if needed, and attach to DA Form 2397-5-R.
8. If the equipment rolls over or noses over one or more times along the crash path, so indicate by use of curved arrows.
9. Identify initial, major, and secondary impact points, as applicable.
10. Show location of key witnesses.
11. Show location of personnel thrown or ejected from the aircraft.

Note: A polar diagram is another acceptable method of diagramming accident sites. The top of the diagram can represent north. A readily identifiable portion of the wreckage e.g., structure, fuselage, nose, wing, etc. can serve as a point of origin or pole for the diagram. Choose a scale that will allow plotting of the whole accident scene. Determine the compass heading of the equipment at its final resting place and position of the equipment on the diagram so debris can be plotted from that point. Determine the compass heading and distance of pieces of wreckage from the main body of the wreckage. Number the location of each piece of wreckage at the position it was found relative to the main wreckage. Define the numbers with a legend that identifies each piece of wreckage and shows its direction and distance from the main wreckage.

Accident Photography

The Purposes of Accident Photography

1. The primary purpose of taking mishap photographs is to preserve evidence. Hesitation may result in lost evidence.
2. Create a pictorial record to be used for:
 - a. Aid to data collection and documentation
 - b. Assist in analysis validation
 - c. Serve as excellent training/briefing aids
 - d. Enhancement of published safety articles
3. Photography can preserve the accident scene by compensating for these typical elements which can destroy evidence.
 - a. Natural elements.
 - 1) Rain may wash away ground scars, soot marks, on key piece of wreckage.
 - 2) Wind may become a factor particularly in the desert environment.
 - b. Human Elements.
 - 1) Trampling or footprints of rescue workers, investigators, and/or security personnel may obscure ground scars or bury small significant pieces.
 - 2) Curiosity seekers
 - 3) Chemicals from fire extinguishing
 - 4) Clearing of debris from roadways and power lines is of primary importance for safety reasons, and health reasons in the case of human tissue, etc.
 - 5) Clearing weapons and ammunition
 - 6) Cleaning liquid spillage, or to stop fuel spillage.
 - 7) Other agencies may need access to the site and could destroy evidence: military police, Civilian Enforcement, Criminal investigation Division, Public Utilities, Roads and Railroads repair.

Photographic equipment.

1. The best all around camera suitable for use by the accident investigator is the 35mm single lens reflex. It is available thru

supply channels. It uses a wide range of film and accessories. What you see is what you get.

2. The best all around filter is an ultra-violet or "Uv" because: you put it on and leave it on. It will work well with both color and black and white film. It serves as a lens protector. It serves as a haze filter.
3. The best flash attachment is an electronic type with a swivel head and flash guard because: It's safest to use, it has "bounce" and "fill" flash capability, it's more versatile than flash bulbs (use of flash bulbs and open faced flash attachments are prohibited in areas where flammable fumes and vapors or spillage exist).
4. The best film is a color print type with an ASA/DIN/ISO value suitable for the purpose and existing lighting conditions. Keep in mind that lower light conditions require a higher ISO number and vice versa. ISO 200 film is a good compromise.
5. The best general purpose lens is the 5-color corrected lens that usually comes With the camera. This lens most closely duplicates the images seen by the human eye and produces the least distortion. The best' optional special purpose lens is a 30 to 200 macro-zoom.

Techniques and Rules of Photographic Coverage

1. Techniques:
 - a. Take lots of film and shoot everything. The significance of a photo may not be known until sometime later in the investigation.
 - b. Keep distractions such as people and unrelated equipment out of the picture.
 - c. Use the viewfinder to compose the picture, it will save cropping the photo later. What you see is what you get.
 - d. If correct exposure is in doubt, straddle the predicted f stop by two stops. You may waste some film but its better than losing the evidence (picture).
 - e. Black and white film – adv/disadv
 - f. Supplies: Batteries, film and plastic bags.
2. Rules:
 - a. Walk around, taking 4 views (or more) at 45 degrees to the nose and tail of the aircraft. Do not forget an aerial view.

- b. If mishap sequence involved motion, such as a trajectory of some sort, photograph the ground path from onset to wreckage.
- c. Photograph damage to objects such as power poles, trees, fences, buildings etc. These photos may be used to substantiate your analysis of the sequence of events and/or material damage. They may also be used as defense in damage claims against the government.
- d. Overhead photos
 - 1) Approaches
 - 2) Ground scares
 - 3) Tree strikes
 - 4) Final resting place

NOTE: Photo's can be used to develop the crash scene diagram.

Special Photographs

- 1. Instrument panels/consoles, circuit breakers and flight or systems controls. These photos may be associated with material failures malfunctions or manipulation error.

NOTE: Body pictures must be controlled.

- 2. Seats, safety devices; i.e., seat belts, shoulder harnesses, safety straps, and fire extinguishes or extinguisher systems.
- 3. Major components---engines, transmissions blades, landing gear, weaponry.
- 4. Evidence of fire

Photo Captions.

- 1. Photographs will be meaningless without captions to enhance the subject, detail the intended depiction and provide necessary support data.
- 2. Devise a method of controlling the photographs you take so as to avoid comments such as, "What is that?", "Is this right side up?", "Why did I shoot that?" These questions are most often asked when viewing proof sheets. Make a log using paper or a voice recording.
- 3. The photo must be numbered and the caption will include; the type of equipment, the id number, date and location of the accident. The caption will have a short paragraph stating the direction

toward which the photo was taken and any significant items you want to point out.

4. Comparison of Size.

NOTE: Standard photo's to be taken: general views, ground path, aerial view, objects struck, large parts of the aircraft, engine, propellers and rotors, landing gear, flight controls, instrument panels, cockpit, and seats.

Photographic Checklist

If an installation photographer is provided, he should be supervised by the accident investigator in charge of photographs. Remember, it is always better to have too many photos rather than not enough.

Use the photographic checklist below to track the required photographs:

Table 3

| Photos Needed | | Ground | Air |
|--------------------------|--|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> | Aerial view from four directions (N, S, E, W). | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | Ground view from four directions (N, S, E, W). | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | General overview of wreckage. Begin at nose and circle clockwise tacking a photograph every 45°. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | Photos of any ground scars. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | Photos of major components. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | Instrument panels and consoles. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | Cockpit / cabin / cab areas. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | Canopy / ejection seat. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | Detailed photos of suspected failed parts. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> | Other photos deemed necessary. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Gathering Data

Human Factor Data

The human factors investigation work group is responsible for the identification of human factors data which relates to the accident sequence or accident personnel. The work group is normally composed of at least two people, the work group leader and an instructor pilot. The work group should also contain a flight surgeon if available. The first order of business for the work group leader is to review the work to be completed and to make general assignments of duties. The following duties are suggested assignments at the discretion of the group leader.

Responsibilities

Work Group Leader. Conduct witness interviews.

1. Complete DA Form 2397-3-R, Human Factors Investigation Narrative.
2. Edit witness statements, but retain critical information.
3. Collect supporting documents as necessary.
4. Ensure human factors materials are turned in to the recorder.
5. Evaluate Training failures.
6. Evaluate Leader failures.
7. Evaluate Standards failures.
8. Evaluate Design failures.
9. Evaluate Individual failures.

Instructor Pilot

Conduct the investigation and data collection in terms of operations and training pertinent to the accident personnel. Normally performs the following actions:

1. Review individual flight records.
2. Review crew training records.

3. Complete the crew information sheet.
4. Review organization and higher SOPs as they apply to this accident.
5. Review the following for possible accident involvement:
 - a. Crew rest policy.
 - b. Crew selection.
 - c. Crew coordination.
 - d. Briefing / back-briefing.
 - e. Weather and weather briefing.
 - f. Flight plan.
 - g. Preflight planning.
 - h. Urgency of mission.
 - i. Pre-accident plan.
6. Complete DA Form 2397-8-R on all crewmembers plus all others definitely contributing or suspected of contributing.
7. Conduct post-accident evaluation checkride.
8. Compute an aircraft weight and balance form (DA Form 365-4) and the performance planning card (PPC) data for the mission aircraft.

Flight Surgeon

Conduct that portion of the investigation pertaining to the medical aspects of the human factors investigation, which will normally include the following:

1. Blood / urine analysis sample.
2. Review medical / dental records for significant entries.
3. Assist in or observe any autopsy, if possible.
4. Conduct post-accident, medical / psycho-physiological examination as necessary.
5. Review use and effects of survival / life support equipment.
6. Document survival equipment problems.
7. Review MEDEVAC actions or problems.

Witness Interviews

Enter general occupation of the witness and duty being performed at time of the incident.

Enter date(s) statement(s) was/were made.

Summarize aviation experience and background; e.g., “aviator 10 years. Total flight hours 3,500 (RW 3,000; FW 500).” Indicate FAA ratings and approximate flight hours for nonmilitary pilot witnesses. Indicate duty descriptions and approximate total flight hours for non-aviator crewmembers drawing incentive pay.

Enter location of witness at the time of the incident relative to flight path/impact of aircraft.

Enter name of person in charge of interview. If witness is interviewed by different person in charge on separate occasions, list all interviewers in charge and prefix each name with “1st,” “2d,” “3d,” etc., to designate which interview session the interviewer conducted.

Complete the summary of interview block as follows:

1. *Multiple interviews, same witness.* Prefix the summary of each interview with the date and indicate if the statement is the 1st, 2nd, 3rd, etc.
2. *Comprehensiveness.* As a general rule, the interview summaries of persons occupying crew stations aboard the aircraft during the incident should be summarized in greater detail than the statements of others. This is because the crewmembers are the best source of information pertaining to the incident chronology of events. The chronology for the “history of flight,” DA Form 2397-2, will most often be obtained from the crew and should be used as a guide in determining what elements of information to include in the interview summaries. If crew error appears to be involved in the incident, the mistake / error s and control failure(s) listed in the instructions for completing the DA Form 2397-1 are useful for determining what should be addressed in the crewmember witness summaries.
3. *Consolidating.* When several witnesses, other than crewmembers, provide essentially the same observations, it is not necessary to prepare a separate DA Form 2397-3 for each witness except for statements made with a promise of confidentiality. List the names of the witnesses and summarize their collective observations.
4. *Format.* The proper format is a concise summary of information elements. An example is as follows: “This witness was occupying a passenger seat (identify location in passenger compartment) in the aircraft at the time of the incident. His account of the incident essentially agreed with the “history of flight” portion of DA Form 2397-2. Additionally, he heard a grinding noise in the area of the aircraft’s transmission and felt a high frequency vibration where his boots contacted the floor of the airframe in the passenger’s

compartment”. In cases where such is essential, limited direct quotes of a witness (together with the specific questions they are in response to) may be used. This, again, should be done sparingly and only when necessary. It is important that the statement be the investigator’s summarization and not an exact verbatim transcript of what the witness said. The summary should be written in the third person (“the witness said,” “he said”,) and not the first person (“I saw,” “I heard,”).

Human Factors Work Group -- Leader Checklist

The human factors work group leader will ensure that the following checks are completed and appropriate comments turned into the board president prior to deliberations.

- ☐ 1. Personnel background information
- ☐ 2. Personnel management
- ☐ 3. Aircraft suitability
- ☐ 4. Communications / air traffic services
- ☐ 5. Navigational aids
- ☐ 6. Meteorological information
- ☐ 7. Ground support services
- ☐ 8. Crashworthiness
- ☐ 9. Personnel egress
- ☐ 10. Special investigation
- ☐ 11. Witness investigation

This checklist is intended to ensure that minimal information is obtained to complete DA Form 2397-3-R, Narrative, in accordance with DA Pam 385-40.

The human factors work group leader will ensure that the following checks are completed and appropriate comments are turned into the board president prior to deliberations.

Human Factors Worksheet

Preflight Phase

| | |
|-----------------------------|---|
| Crew Rest Deficiencies | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Crew Selection Adequate | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Adequate Weather Brief | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Adequate Mission Brief | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Adequate light Plan | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Adequate PPC | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Urgency of Mission | <input type="checkbox"/> Normal <input type="checkbox"/> Abnormal <input type="checkbox"/> See Comments |
| Adequate Aircraft Preflight | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Comments | |

Flight Phase

| | |
|-----------------------------|--|
| Adequate Performance Check | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Errors Committed by Pilot | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Errors Committed by Copilot | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Errors Committed by ATC | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Errors Committed by Tower | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Errors Committed by Support | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Errors Committed by Others | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Comments | |

Post-Accident Phase

| | |
|-----------------------------|--|
| Egress Problems | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Survival Equipment Problems | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Medevac Problems | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Adequate Crash Plan | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Post-accident Evaluation | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Crashworthiness by Design | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |

| | |
|---------------|--|
| Design Errors | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Comments | |

SOP Review

| | |
|---------------|--|
| Discrepancies | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Comments | |

Flight Records Review

| | |
|---------------|--|
| Discrepancies | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Comments | |

Maintenance / technical manual Review

| | |
|---------------|--|
| Discrepancies | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Comments | |

Medical Records Review

| | |
|---------------|--|
| Waivers | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Abnormalities | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Comments | |

Crew Information

| | | | | | | | | |
|--|----------|---------------|--|--|--|----------------|--------------|--|
| Name | | | | Grade | | | SSN | |
| Height | (inches) | Weight | | Birth date | | | Sex | |
| Security Clearance | | | | | | | | |
| Duty During Accident | | | | Organization | | | | |
| Service / Agency | | | | | | | | |
| Date Rated in Aircraft | | | | | | | | |
| Date of most recent flight this aircraft series (Prior to accident date) | | | | | | | | |
| Duration of most recent flight this aircraft series (Prior to accident date) | | | | | | Hrs Minutes | | |
| Date of last standardization flight this aircraft series (Prior to accident date) | | | | | | | | |
| Date last leave ended. | | | | | | | | |
| Leave Type | | | | Number Days | | | | |
| Hours Flown Past 24 Hours | | | | | | | | |
| Hours Flown Past 48 Hours | | | | | | | | |
| Hours Flown Past 72 Hours | | | | | | | | |
| Hours Worked Past 24 Hours | | | | | | | | |
| Hours Worked Past 48 Hours | | | | | | | | |
| Hours Slept Past 24 Hours | | | | | | | | |
| Hours Slept Past 48 Hours | | | | | | | | |
| Hours Slept Past 72 Hours | | | | | | | | |
| Hours Continuously Awake Prior to Accident | | | | | | | | |
| Hours of Last Sleep Period | | | | | | | | |
| Date of Last Physical Exam | | | | | | | | |
| Do you smoke tobacco? | | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | |
| If yes, how much per day | | | | Cigarettes / Day | | | Cigars / Day | |
| Total Flight Time Prior to Last Flight | | | | | | | | |

| | | | | | |
|---|--|---|--|--|---|
| Instrument Qualification Date | | | | | |
| Years Education | | | | | |
| Physiological Training | | <input type="checkbox"/> Altitude <input type="checkbox"/> Survival <input type="checkbox"/> Overwater <input type="checkbox"/> Other | | | |
| Number and Date of Previous Accidents | | | | | |
| Local Address | | | | | |
| Telephone Number | | | | | |
| Helmet Type | | Visor Clear or Tinted | | Up or Down | |
| Glasses | <input type="checkbox"/> Regular -- Clear <input type="checkbox"/> Regular -- Tinted <input type="checkbox"/> Prescription -- Clear <input type="checkbox"/> Prescription -- Tinted <input type="checkbox"/> Required <input type="checkbox"/> Worn | | | | |
| Underwear | <input type="checkbox"/> Cotton <input type="checkbox"/> Wool | Socks | <input type="checkbox"/> Cotton <input type="checkbox"/> Wool | Jacket | <input type="checkbox"/> Nylon <input type="checkbox"/> Nomex |
| Did the shoulder harness inertial reel lock? | | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| Where were you located in the aircraft? | | | | | |
| Order of exit (<i>first, second, third, etc</i>) | | | | | |
| Aircraft qualified in when assigned | | | | | |
| Aircraft since assignment | | | | | |
| Major duties at the time of the accident. | | | | | |
| Percent of time spent on duties. | | | | | |

(For example, include duties, diet, recreational activities, parties, sleep, family illness, etc.).

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Material Factors Investigation

The material factors investigation work group is responsible for the identification of material factors data which relates to the accident sequence or accident equipment / material. The work group is normally composed of one or two people, the work group leader and a mechanic / maintenance technician. The first order of business for the work group leader is to review the work to be completed and to make general assignments of duties.

Material Factors Work Group -- Leaders Checklist

The material factors work group leader will ensure that the following checks are completed and appropriate comments turned into the board president prior to deliberations.

Aircraft airworthiness

- ☐ 1. Inventory all major systems / components assigned to aircraft.
- ☐ 2. Inventory material issued to crewmember for mission.
- ☐ 3. Were all material systems in operating condition as indicated by records checks?
- ☐ 4. Dates of last maintenance / inspection on material systems specific to aircraft and crewmembers.
- ☐ 5. Any indication of chronic malfunctions of systems as evidenced by maintenance records.
- ☐ 6. Types and reasons for last maintenance actions.

Material systems normal flight operations

- ☐ 1. Material discrepancies noted during preflight. Returned to operating control? If not, other systems affected or limitations on mission by this discrepancy.
- ☐ 2. Any caution of advisory indications noted during flight operations. Action taken to correct or disable.

Airframe (Includes landing gear, flight controls)

- ☐ 1. Is airframe intact?
- ☐ 2. If not intact, where is the failure?
- ☐ 3. Did failure occur in the air?
- ☐ 4. Did failure occur at impact?
- ☐ 5. Was the failure a contributing factor in the accident (initial)?
- ☐ 6. Was the failure a result of another failure (secondary)?
- ☐ 7. Was the aircraft carrying an internal load? If yes, what type?
- ☐ 8. Was load properly placed and secured?
- ☐ 9. Was aircraft within CG and gross weight limits?
- ☐ 10. Is there evidence of other than ground impact?
- ☐ 11. Have measures been taken to ensure that both sides of a fracture have been completely examined?
- ☐ 12. Are all parts present? If not, has a search been initiated to find them?
- ☐ 13. Is a metallurgical analysis necessary?

- ☐ 14. What was position of following (as applicable) at time of accident?
- | | | | |
|-------|-------|----------------|-------|
| Gear | _____ | gear indicator | _____ |
| Flaps | _____ | flap indicator | _____ |
- ☐ 15. The following items should be checked for breakage, misalignment, and/or jammed parts of control linkages?
- ☐ a. All control surfaces.
 - ☐ b. Hinges, bell cranks, "push-pull" tubes, cables, pulleys, balances, and tab mechanisms.
 - ☐ c. Rotor head and quadrant assemblies.
 - ☐ d. Linear actuators and bungle assemblies.
 - ☐ e. Hydraulic servos/actuators.
 - ☐ f. Magnetic stop organizations and hydraulic accumulators.
 - ☐ g. Transmission and drive shafts.
 - ☐ h. Rotor blade pitch change links.
- ☐ 16. Is it probable that failure of any parts resulted from improper design wear neglect impact
- ☐ 17. Were there external appendages? If so, could they have possibly adversely affected flight characteristics?
- ☐ 18. Has complete control system been traced and carefully inspected for evidence of separation and / or bending? If evidence exists, determine if it was caused prior to or because of impact forces.
- ☐ 19. Check all control surfaces for proper installation and attachment.
- ☐ 20. Check and record surface travel for the following components:
- | | | | |
|-------------|-------|--------------------------|-------|
| rudder | _____ | cyclic control | _____ |
| elevator | _____ | collective pitch control | _____ |
| aileron | _____ | anti-torque rotor | _____ |
| anti-torque | _____ | rotor pedals | _____ |
- ☐ 21. Determine if aircraft was subjected to extreme gusts while moored without proper control locks installed.
- ☐ 22. Determine, if possible, whether aircraft was subjected to high aerodynamic forces caused by violent flight maneuvers or in-flight turbulence.
- ☐ 23. Has aircraft recently been operated from rough unimproved fields?
- ☐ 24. Have other abnormal forces been applied to the landing gear or skids?

- ☐ 25. Is there evidence of repeated abnormal contact of control surfaces against their stops and/or evidence of hard landing?
- ☐ 26. Has aircraft been operated extensively in tropics or near salt water?

Ejection seats.

- ☐ 1. If occupant did not eject, determine, if possible, if ejection was attempted.
- ☐ 2. Is ejection seat in safe condition? If it has not been fired, have it disarmed by qualified personnel prior to moving.
- ☐ 3. Is seat to primary charge in normal position?
- ☐ 4. What is position of upper and lower firing handles?
- ☐ 5. Check for position of the trip rods.
- ☐ 6. Determine, when possible, if the seat fired from impact forces or from being activated by the occupant.
- ☐ 7. If ejection accomplished successfully, determine the following: means of escape, upper, or lower handle.

Was canopy released prior to ejection? _____

Aircraft speed at ejection. _____

- ☐ 8. If fire consumed an electrical component, obtain a complete story of the condition existing before and at time of failure.
- ☐ 9. If faulty wiring is a factor, check terminal connectors, routing, clamping, chafing, deterioration, etc.
- ☐ 10. Was suspected system protected by a circuit breaker or fuse.
- ☐ 11. Check rotating electrically operated equipment to determine if operating at impact.

Communication, instrument, and electrical systems.

- ☐ 1. Determine and record the settings of pertinent switches, dials, and controls and note installation and location of antennas.
- ☐ 2. Determine if crewmembers, crash rescue personnel, or early arrivals at the scene moved any of the controls, installation, or switches.
- ☐ 3. Check maintenance forms and obtain assistance of communications or electronics experts as necessary.
- ☐ 4. Check reliability of radios, electronic equipment, and use of other navigational aids.
- ☐ 5. Determine, if possible, navigational aids used.
- ☐ 6. If necessary, carefully inspect both engine and navigational instruments and record the readings.
- ☐ 7. Check maintenance history, accuracy, and possible inadvertent misuse of suspected engine and navigational instruments.

engine and navigational instruments.

- ☐ 8. Photograph instrument panel for later use.
- ☐ 9. If necessary, utilize ultraviolet light on instrument face to establish needle position at impact. (Ultraviolet light may also be used to read burned aircraft records.)

Engine / Power-plant.

- ☐ 1. Were propellers bent upon impact? Forward or backwards?
- ☐ 2. Check and record propeller blade angle settings.
- ☐ 3. Check propeller hub and teeth of blade segment gears and master drive gear for indentations. Compare worked teeth with an undamaged gear to identify blade angles at impact.
- ☐ 4. Check propeller marks on ground or other objects.
- ☐ 5. Check any objects for possible rotor blade contact prior to impact.
- ☐ 6. Preserve and pay particular attention to ground scars made by main rotor or tail rotor.
- ☐ 7. Compare blade strikes on fuselage with section of main rotor or tail rotor that made contact.
- ☐ 8. Check attaching areas of main rotor blade for: continuity fatigue failure proper security of all fittings
- ☐ 9. Check power train for torsional twisting.
- ☐ 10. Are all major pieces of main and tail rotor blades accounted for?
- ☐ 11. Has every effort been made to determine the cause of engine failure while at the accident scene?
- ☐ 12. Determine engine components, if any, to be sent to CCAD / OEM for analysis. Monitor closely.
- ☐ 13. Engine examined in the field, obtain the following:
 - a. Serial number _____
 - b. Manufacturer, type, and model _____
 - c. Pertinent information from flight _____
- ☐ 14. When engine examined in the field, accomplish the following:
 - ☐ a. Locate all accessories and components pertinent to engine operations.
 - ☐ b. Check position of primary and secondary controls to determine the position of the various valves controlling the flow of fuel to the engine, including the primer.
 - ☐ c. Obtain pertinent engine operation data prior to the accident.
 - ☐ d. Determine duration of flight before accident to determine if fuel exhaustion may be involved.

- ☐ e. Obtain information from witnesses about engine operations such as smoke, fire explosion, or unusual noise.
- ☐ f. If fire was a factor, was it located in the fuselage or nacelle position of the aircraft?
- ☐ g. Check the system for leaks or obstructions from fuel tanks to combustion chamber.
- ☐ h. Check fluid carrying lines for improper installation or signs of malfunction.
- ☐ i. Check oil strainer and sump for foreign particles.
- ☐ j. Check the ignition system to include magnetos, switches, spark plugs, and leads.

Materiel / Systems (rotors or propellers).

- ☐ 1. Collect and inventory; reconstruct the whole assembly if possible.
- ☐ 2. Examine damage / scarring to determine if systems were turning at impact and if power was applied at impact.
- ☐ 3. Examine all linkage from cockpit controls to systems for continuity/disconnect, all bearing assemblies and / or blade grips for failure prior to impact.
- ☐ 4. Check for serial numbers of blades / propellers against historical records.

Transmission / Gearboxes

- ☐ 1. Determine if CCAD / OEM teardown is necessary.
- ☐ 2. Determine if any damage was the result of or was a cause factor in the accident.
- ☐ 3. Check witnesses to determine if operating properly; i.e., grinding noises, smoking, etc.
- ☐ 4. If a factor, check all linkages and connectors for breakage, etc.
- ☐ 5. Check for oil. Take sample.
- ☐ 6. Check sumps, extensions, mounting, gears, vents, etc.
- ☐ 7. Check chip detectors for chips.
- ☐ 8. Check for heat discoloration.
- ☐ 9. Check cases for cracks or distortion.
- ☐ 10. Check control linkage or cables for continuity.

Material Factors Worksheets

Material Inspection

| | |
|------------------------|--|
| Failure or Malfunction | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Design Errors | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Comments | |

Maintenance SOP Review

| | |
|----------|--|
| Adequate | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Followed | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Comments | |

Weight and Balance Records Review

| | |
|---------------|--|
| Discrepancies | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Comments | |

Maintenance Records Review (Current & Six Month)

| | |
|---------------|--|
| Discrepancies | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Comments | |

Historical Records Review

| | |
|----------------------|--|
| Discrepancies | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Serial Numbers Check | <input type="checkbox"/> Errors <input type="checkbox"/> No Errors <input type="checkbox"/> See Comments |
| Comments | |

POL Analysis

| | |
|---------------|--|
| Discrepancies | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> See Comments |
| Comments | |

Instrument and Controls Setting Worksheet

Flight Controls

| ITEM | POSITION / SETTING | REMARKS |
|---------------------|--------------------|---------|
| Cyclic / Yoke | | |
| Throttle / Quadrant | | |
| Collective | | |
| Flaps | | |
| Landing Gear | | |

Flight Instruments:

| ITEM | POSITION / SETTING | REMARKS |
|----------------------------|--------------------|---------|
| Airspeed | | |
| Vertical Speed | | |
| RMI | | |
| Magnetic Compass | | |
| Altimeter (Altitude) | | |
| Altimeter (Kolsman Window) | | |

Engine Instruments (List)

| ITEM | POSITION / SETTING | REMARKS |
|------|--------------------|---------|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |

Avionics (Navigation)

| ITEM | POSITION / SETTING | REMARKS |
|---------------|--------------------|---------|
| ADF #1 | | |
| ADF #2 | | |
| Marker Beacon | | |

| | | |
|------------------|--|--|
| VOR / ILS | | |
| GPS | | |

Avionics (Communications)

| ITEM | POSITION / SETTING | REMARKS |
|---------------|---------------------------|----------------|
| VHF #1 | | |
| VHF #2 | | |
| UHF #1 | | |
| UHF #2 | | |
| FM #1 | | |
| FM #2 | | |

Avionics (Miscellaneous)

| ITEM | POSITION / SETTING | REMARKS |
|------------------------|---------------------------|----------------|
| Radar Altimeter | | |
| Autopilot | | |
| Other | | |
| Other | | |

Miscellaneous (i.e., Switches)

| ITEM | POSITION / SETTING | REMARKS |
|------------------------|---------------------------|----------------|
| Fuel Switch | | |
| External Lights | | |
| Internal Lights | | |
| Other | | |
| Other | | |

Analyzing and Reporting Data

Accident Causes

Once information related to an accident is gathered, it must be analyzed. The information gathered from accident investigations is of little use unless it is properly analyzed. The analysis of this data will indicate root cause systemic defects. When analyzing this data it should be categorized into one of four categories;

1. Found; Primary Cause of Mishap
2. Found; Contributing to Mishap
3. Found; Increasing Severity of Damage / Injuries
4. Found; Not Contributing but if left uncorrected could cause an accident in the future

When analyzing this data it is important to understand what causes accidents. As previously stated, accidents are caused by uncontrolled hazards. The controls are either inadequate, known and not enforced, or not known. It may be relatively easy to identify errors, but the control failure(s) / systemic defect(s) is / are the real issue and often the most difficult to determine.

There are five mechanisms through which we control hazards. These are leader, training, standards, support / engineering, and individual. If a mechanism for controlling a hazard is not properly addressed, then an accident could occur. Through the hazard identification process used by the Safety Management System, control mechanism failures, and the reason for failure, are identified. The following is a detailed listing of the five control mechanisms and the reasons these controls fail.

Standards Failure

Inadequate written standards

Inadequate written standards become the root causes when they lead to accident-causing mistakes or materiel failure / malfunctions.

Support Failure

Inadequate facilities or services

Inadequate facilities or services become root causes when the maintenance, space and/or support provided for personnel and materiel to accomplish their functions cause mistakes or failures / malfunctions that lead to accidents. (Examples of facilities or services are recreation areas, POL services, housing, medical clinics / hospitals, weather services, storage areas, maintenance facilities, and property disposal).

Inadequate or improper equipment design or equipment not provided

Improperly designed equipment and materiel or lack of equipment or materiel become root causes when the design or lack of equipment leads to accident-causing personnel errors or materiel failures / malfunctions.

Insufficient number or type of personnel

Insufficient number or type of personnel becomes a root cause when people make accident-causing mistakes or materiel fails / malfunctions because the number or type of personnel provided was insufficient.

Inadequate quality control, manufacture, packaging, or assembly

The inadequate manufacture, assembly, packaging, or quality control of materiel becomes a root cause when it leads to accident-causing personnel errors or materiel failures / malfunctions. (Note: Includes original manufacture and rebuild).

Inadequate maintenance

Inadequate maintenance (inspection, installation, troubleshooting, record keeping, etc.) becomes a root cause when it leads to accident-causing personnel errors or materiel failures/malfunctions.

Training Failure

Inadequate school training

School training becomes a root cause when people make accident causing mistakes because the school training was inadequate in content or amount.

Inadequate organization/on-the-job training

Organizational or on-the-job training becomes a root cause when people make accident-causing mistakes because the training provided was inadequate in content or amount.

Inadequate experience

Supervised on-the-job experience is the follow-up to school and organization training programs. Experience becomes a root cause when people make accident-causing mistakes because the experience provided was inadequate in content or amount.

Habit interference

Habit interference becomes a root cause when a person makes an accident-causing error because task performance was interfered with the way he usually performs similar tasks.

Leader Failure

Inadequate or improper supervision by higher command

Lack of supervision by battalion or higher command regarding individual or collective tasks.

Inadequate or improper supervision by management staff.

Lack of supervision by company command regarding individual or collective tasks.

Inadequate or improper supervision by departmental managers

Lack of supervision by platoon level leadership regarding individual or collective tasks.

Inadequate or improper supervision by direct supervisor

Lack of supervision by immediate supervisor regarding individual or collective tasks.

Note: Inadequate supervision becomes a root cause when it leads to accident-causing personnel mistakes or material failure/malfunctions. Inadequate supervision is more clearly identifiable at the immediate supervisor level.

Individual Failure

Fear, Excitement, or Anger (inadequate composure)

Each person is a part of the system. Therefore, his state of mind is a system element. Inadequate composure is a temporary state of mind that becomes a root cause when a person makes an accident-causing error because of fear, excitement, or some related emotional factor made clear, rational thought impossible.

Overconfidence or complacency in abilities

Overconfidence is a temporary state of mind that becomes a root cause when an accident is caused by a person's unwarranted reliance on: his own ability to perform a task, the ability of someone else to perform a task, the performance capabilities of equipment or other materiel.

Lack of confidence

Lack of confidence is a temporary state of mind that becomes a root cause when an accident is caused by a person's unwarranted lack of reliance on: his own ability to perform the task, the ability of someone else to perform the task, the performance capabilities of equipment or other materiel.

Haste or Attitude (poor motivation)

Haste or attitude (poor motivation) is a temporary state of mind that becomes a root cause when a person makes an accident-causing mistake because he or she is in a hurry (haste), or has a poor or bad attitude.

Fatigue (self-induced)

Fatigue is a temporary physical and / or mental state that becomes a root cause when a person makes an accident-causing error because of reduced physical or mental capabilities resulting from previous activity and / or lack of rest.

Effects of alcohol, drugs, illness

The temporary effects of alcohol, drugs, or illness become a root cause when a person makes an accident-causing error because of reduced physical or mental capabilities resulting from one or more of these effects.

Environmental conditions

Unknown or unavoidable conditions, which result in materiel failure or induce human error.

Developing the Analysis Paragraph

The analysis paragraph should summarize the first three paragraphs of the narrative to include the opinions and conclusions of the board and must conclusively show the cause and effect relationship of the evidence gathered during the incident investigation. The analysis should also discuss those potential factors considered but not supported or determined not to be factors by investigation board. The analysis discusses the influence of command activity or lack thereof in the occurrence or potential prevention of incidents. Subparagraph headings in the analysis may coincide with pertinent subparagraphs in the first three sections of the narrative, with the exception of command influence, which is reserved for the analysis paragraph only. As a minimum, the analysis part of the narrative will provide the following information:

1. Identify the Human errors, materiel failures, or environmental factors involved in the incident in the context of the incident sequence of events.
2. Discuss the results/effects of the errors/materiel failures/environmental factors.
3. Identify the control failure(s) that caused or permitted the errors/materiel failures/environmental factors or injuries to occur.
4. Report preventable injuries in the context of crash survivability/egress/rescue, and explain how they occurred.
5. Discuss the command influence in the incident sequence of events, or the prevention of potential incidents.

To fulfill these information requirements, the board should review all the evidence relating to the incident disclosed during the human, environment and materiel factors investigations. This may require reasserting specific paragraphs contained in the narrative and indicating the relationships between the facts disclosed and the errors/failures/environmental factors that occurred. From this review, the board should consider a logical development of the various circumstances and events that may have existed. This process of deductive reasoning should lead to the formulation of an explanation (or explanations) concerning what caused the incident and preventable injuries, if they occurred, and why they happened. The explanation(s) should be discussed and tested against the evidence gathered during the investigation. If it is necessary to develop hypothesis, it is

important for the board to state why a particular hypothesis was or was not supported by the evidence.

To initially outline and structure the correlation of cause-related errors/materiel failures/environment factors and associated control failure(s), the board will find it useful to review the definitions and examples of mistakes/errors, control failure(s), and remedial measures, before composing the narrative part of the analysis. When the outline has been completed, the narrative rationale and conclusions should be composed using the following examples as a guide:

Begin the paragraph by specifying the scope and conclusion of the investigation. In all cases, begin the paragraph with these words: "After analyzing the human, materiel, and environmental data collected during the investigation, the board concluded the incident was caused by..." Complete the sentence by specifying the factor(s) (human, materiel, or environmental) which caused the incident, e.g., "...human error-leader failure."

1. Describe when or where the error/failure/injury/environmental factor occurred in the context of the incident chronology of events; e.g., "before the mission," "during takeoff," "during an NOE deceleration," "while installing a hydraulic line," "during the in-flight ejection," "during the crash sequence," etc.
2. Identify the duty position of the person who erred, became injured, or the name and part number of the national stock number (NSN) of the part, component or system that failed; e.g., "the pilot"; "the mechanic", "the fuel control, NSN 2915-00-157-2313"; the input bevel gear, part number 2040405009;" etc.
3. Identify the error in the context of a listed mistake / error category; e.g., "incorrectly diagnosed the emergency at hand," "failed to assign responsibilities," "failed to detect," e.g., "overheated," "vibrated," "frayed", "decayed," etc. If an injury is being reported, explain if the individual "struck" or "was struck by" the injury-causing agent.
4. Cite the directive or standard the mistake / error category failed to comply with. In the absence of written guidance/standards for a mistake / error , evaluate the task in terms of how other equally qualified and prudent personnel would perform the same task under similar circumstances. If the error represents performance that is unacceptable, it is contrary to common practice.
5. Describe the specifics of the error; e.g., "he failed to initially increase collective to maintain the altitude of the tail rotor," "he excessively torqued the nut, PN 12345;" etc.

6. Describe the consequences of the error, materiel failure, environmental factor, or the resulting injury; e.g., “as a result, when he applied aft cyclic to slow to a full stop, the tail rotor struck the ground, damaging the tail rotor blades and causing a loss of anti-torque control;” “as a result, the aircraft landed hard;” “as a result, the pilot sustained a compression fracture of the T12-L1 vertebrae;” etc.
7. A complete error statement could read as follows: “During an NOE deceleration, the pilot improperly responded to the emergency as described for standard 2, task No.5007, technical manual. That is, he failed to initially increase collective to maintain sufficient altitude for tail rotor clearance of the terrain. As a result, when he applied aft cyclic to slow to a full stop, the tail rotor struck the ground damaging the tail rotor blades and causing a loss of effective anti-torque control.”
8. A complete materiel failure statement could read as follows: “During cruise flight, a section of the input bevel gear, PN 2040405009, eroded through. As a result, the continuity of the tail rotor drive system was interrupted, causing a loss of effective anti-torque control.”

Each statement of error, materiel failure, environmental factor or injury will be followed by statements identifying the control failure(s) that caused or permitted the error/failure/injury to occur or an environmental factor to become a cause. The control failure(s) statements are the most important part of the analysis. This is because the control failure(s) causing or permitting an error, failure, or injury to occur or an environmental factor to become a cause are more important from a remedial standpoint than the error, failure, injury, or environmental factor itself. Each control failure(s) statement will contain the following information:

1. A transition phrase to tie the control failure(s) to the error/failure/injury; i.e., “the pilot improperly responded to the emergency because,” “the bevel gear eroded to a point of failure because,” “the pilot sustained the back injury because,” etc.
2. Identification of the control failure(s) category(ies); e.g., “because of inadequate motivation/mood (attitude),” “inadequate supervision by the organization operations officer,” “because of inadequate seat design,” etc.
3. An explanation of how or why each control failure(s) caused or permitted the error/failure/injury/environmental factor: e.g., “During the pilot’s last standardization flight evaluation, the IP told the pilot he did not perform the NOE deceleration properly and needed additional dual instruction. Regardless, the pilot chose

to practice the maneuver by himself before he was given additional training. The IP contributed to the error because he graded substandard performance of the maneuver satisfactory during the standardization flight evaluation and he did not follow up the additional training. The organization operations officer contributed to the error because he schedule the pilot for a tactical training mission before ensuring the pilot had received the mission training;" "the manufacturer's quality control procedures failed to detect a machine defect on the surface of the gear that became the source of progressive fatigue mechanisms;" etc.

Once the preceding elements of information are reported for each error, failure, injury, or environmental factor in the manner stated, the resulting conclusions (findings) can stand on their own. The example of human error used in these instructions ties three control failure(s) to the error. There would be more or less control failure(s) depending upon the circumstances. The point to be made is that control failure(s) causing or permitting an error, failure, or environmental cause must be made visible before effective corrective actions can be recommended.

The analysis part of the narrative does not have to be limited to explaining and concluding what caused or contributed to the incident or injuries. The analysis may also address present but noncontributing hazards if they could adversely affect the safety of aviation operations. There are provision for reporting non-cause-related hazards. They are contained in the instructions for completing the DA Form 2397-1.

1. Historical Records. Examination should include an evaluation of all historical records to include weight and balance, MWOs, and safety-of-flight messages. Include aircraft serial number, organization of assignment, home station, and total flight time (airframe) hours at the time of the accident.
2. Maintenance Records. Examination should include an evaluation of the current maintenance records, to include all logbook forms, six-month file, and corrected/uncorrected faults. Particular attention should be spent on technical publications not complied with.
3. Adequacy of Preflight. Was an adequate preflight inspection conducted? Was the organization following standard maintenance procedures?

Aviation Accident Narrative Details

The accident investigator(s) will report, in narrative form, the facts, conditions, and circumstances as established during the investigation and present this information in four sections (history of flight, human factors, materiel factors and analysis). The first three sections will contain factual data. The analysis section is reserved for the board's documentation of its conclusions/opinions concerning the incident cause relationships. Additional subheadings may be added as deemed necessary. It is important that the narrative address all of the chronological events and evidence that had a bearing on the cause of the incident and/or have the potential for adversely affecting safety of future operations. For incidents in which the investigation board determines that human error, material failure/malfunction or environmental conditions were a factor, that portion of the narrative will be completed in its entirety, as specified in the instructions below. The history of flight, personnel background, personnel management, meteorological, airworthiness, laboratory analysis, and analysis portions will be completed for all incidents. For the remaining subheadings which the investigation board determines were not a factor, enter after the subheading "Investigation revealed not a factor" and proceed to the next subheading. Opinions concerning the incident cause relationship of evidence cited throughout the narrative will be discussed only in the analysis section. Use letter-size paper for continuation sheets as required.

Discuss each item in narrative form. Don't just answer the questions. Discuss only those items applicable to the type accident. If a paragraph does not apply, use the standard statement, "Not a causal factor in this accident" or N/A to so note.

Preflight Phase

1. What was the type of mission?
2. What was the purpose of the mission?
3. How did the organization become tasked with the mission?
4. Who or what activity authorized the mission?
5. Identify the crewmembers selected for the mission.
 - a. Duty assigned.
 - b. Crewmember station.
 - c. How / when / where they were informed of the mission.
6. What action did crewmembers take in mission preparation?

- a. Preflight planning (weather, fuel, PPC, etc.).
 - b. Weight and balance determinations.
 - c. Briefings.
 - d. Filing.
 - e. Inspecting aircraft.
 - f. Other.
7. Was there a sense of urgency associated with the mission?
 8. Were there delays prior to the flight's departure?

Flight Phase

1. When did the aircraft depart on the mission?
2. Chronologize each routine flight segment and ground stop, if any, prior to the accident flight segment.
 - a. If accident segment contained an in-flight emergency, describe the event in detail to include:
 - b. Onset.
 - c. When it occurred.
 - d. Symptoms.
 - e. Warnings.
 - f. Instrument readings.
 - g. Actions / reactions of aircraft.
 - h. Actions / reactions of crewmembers from onset until aircraft is at rest at the conclusion of the flight.

Post-flight Phase

1. Brief description of condition of aircraft immediately after accident.
2. Brief description of condition of occupants immediately after accident.
3. Note: (Reserve details for those parts of the report that are applicable.)
4. If post-crash fire, explain.
5. How / when was the fire extinguished.
6. Summarize occupants' egress.
7. Summarize search and rescue efforts.

Note: (Reserve details of egress, search and rescue for parts of report that are applicable.)

Human Factors for Aviation Accidents

Summarize background and qualifications for all persons with access to flight controls and anyone associated with or who may have played a part in the accident (those who made, caused or contributed to the errors), i.e., commanders, operations personnel, passengers, etc. (Only on personnel directly involved with the accident).

For incidents resulting from causes other than human factors, the human factors part of the narrative may be sharply reduced to negative comments for the subheadings except for subheadings addressing personnel background information, personnel management, and meteorological conditions.

Personnel Background Information

1. Describe each aviator crewmember's aviation qualifications and readiness to perform the mission.
2. Was he qualified and current in the MTDS used?
3. Explain any irregularities in the training folder.

For example:

- a. Accomplished minimums.
 - b. Instrument renewal.
4. Indicate if requirements were met and when.
 5. If post-accident evaluation was given, summarize results.
 6. Highlight weaknesses in proficiency, if appropriate.

Note: (Emphasize those tasks duplicating those involved in the accident).

7. Describe experience in mission aircraft.
8. Initial qualification.
9. Total time.
10. Flight time last 3 months.
11. Background report. Include:
 - a. Evidence of flight safety violations.
 - b. Flight evaluation boards.
 - c. History of prior accident involvement. Explain role.
12. Were aviator crewmembers physically qualified?
13. Discuss currency of flight physical.

14. Waivers, other medical irregularities.
15. Professional reputation in organization, opinions of peers, subordinates, and others who have flown with them, etc.
16. Review:
 - a. Social habits.
 - b. Financial status.
 - c. Marital well-being.
 - d. Sleep / dietary habits.
 - e. Off-duty schooling.
 - f. Recreational activities.

Note: Explain irregularities. If none, so state.

17. Medication. Was an aviator crewmember receiving any? Prior to accident? If so, report:
 - a. Type.
 - b. Source.
 - c. Dosage.
 - d. Side effects.
 - e. Possible effects on performance.
18. Fatality? Summarize autopsy report, AFIP tissue specimen and other analysis results available. Explain any irregularities.
19. Injuries? Summarize in terms of body aspect, causative agent, etc.
 - a. Were injuries related to aircraft crashworthiness?
 - b. Were problems associated with:
 - 1) Escape.
 - 2) Survival.
 - 3) Rescue.

Note: Make brief comments on this part of narrative detail in specific sections devoted to these phases.

20. Non-rated/passenger occupants.
21. Was non-rated/passenger at controls or aerial observer, or other cause-related role?
 - a. Summarize background and qualifications.
 - b. Summarize background and qualifications of any personnel not aboard the aircraft if they played a part, i.e.,

- 1) Commanders.
- 2) Operations personnel.
- 3) ATC personnel.
- 4) Weather personnel.
- 5) Maintenance personnel.
- 6) Others, as applicable.

Note: Extremely important. Use all resources to obtain.

Personnel Management

1. How did organization manage each individual involved in accident?
2. Begin with date of assignment to current organization.
 - a. Review:
 - 1) Experience upon assignment.
 - 2) Qualifications upon assignment.
 - b. Report how individual was:
 - 1) Tasked.
 - 2) Trained.
 - 3) Managed to date of accident.
 - c. Discuss additional duties and percent of time given versus time given to primary duty.
 - d. Report qualifications acquired since assignment:
 - 1) Checkouts in additional aircraft.
 - 2) Appointments:
 - 3) IP.
 - 4) SIP.
 - 5) IFE.
 - 6) PIC.
 - 7) UT.
 - 8) Etc.
 - e. Review procedures involved with mission crew selection.
 - 1) Evaluate timeliness of notification.
 - 2) Crew / mission compatibility.

- 3) Relative flight experience of pilots (if more than one).
- f. Review organization crew rest policy.
 - 1) In effect?
 - 2) Being monitored?
 - 3) Being complied with?

Aircraft Suitability

- 1. Discuss suitability of accident aircraft to perform mission.
 - a. Consider:
 - b. Flight and navigational instrumentation regarding prevailing weather.
 - c. Fuel consumption relative to range.
 - 1) Power available relative to:
 - 2) Gross weight.
 - 3) Density altitude.
 - 4) Aircraft design limitations IAW aircraft operations manual (Configurations, etc.).

Communications / Air Traffic Services

- 1. Communications equipment (visual/electronic signals, etc.)
- 2. Communications occurring:
 - a. Among the crew.
 - b. Between the crew and passengers.
 - c. Between the crew and outside services; e.g.,
 - 1) ATC.
 - 2) Operations.
 - 3) FSS.
 - 4) Command and control.
 - 5) Miami Caribbean Trans-Oceanic.
 - 6) Pathfinders, etc.
- 3. Consider language difficulties and:
 - a. Understanding spoken word.
 - b. Adequacy and precision of instruction, etc.

Navigational Aids

1. Discuss adequacy of navigational aids to include:
 - a. VOR.
 - b. NDB.
 - c. ILS, etc.
2. Consider FAA or other agency involvement, NOTAMS, PIREPS, etc.

Meteorological Information

1. Discuss weather conditions prevailing throughout mission.
2. Include:
 - a. Sky condition.
 - b. Visibility.
 - c. Winds.
 - d. Icing.
 - e. Turbulence.
 - f. Any significant weather conditions.
3. Consider weather observations by:
 - a. Trained weather observers.
 - b. Witnesses in the area.
4. Discuss accuracy of forecast received by crew. If actual weather differed significantly from forecast, include discussion of information available to forecaster.
5. If mission involved NVG operations, obtain details of moonglow, local resolution, etc.

Ground Support Services

1. Discuss evidence relating to ground support services in the accident.
2. Consider:
 - a. POL.
 - b. Ground guides.
 - c. Fire guards, etc.

Crash Survival

1. Discuss evidence relating to crashworthiness.
2. Include:
 - a. Performance of restraint systems.
 - b. Aircraft structure.
 - 1) Occupiable space.
 - 2) Attenuation.
 - 3) Seats.
3. Performance of personal protective equipment, i.e.,
 - a. Helmet.
 - b. Visor.
 - c. Clothing, etc.

Emergency Egress, Survival and Rescue

1. Include:
 - a. Ejection/bailout.
 - b. Survival/rescue.
2. Discuss difficulties encountered by survivors and rescuers.
3. Include information on:
 - a. Training.
 - b. Equipment used (type).
 - c. Any failure/malfunction of equipment used.

Witness Investigation.

1. Briefly indicate number of witnesses interviewed.
2. Identify each by duty position.
3. Indicate whether or not witnesses generally agree.
4. Discuss credibility.

Special investigation.

Reports results of any special investigations that were conducted because of the incident. If, for example, during the investigation, it is found that helmet mounted display or night vision systems were a factor in the incident, the applicable agency/program manager should be notified and a determination made as to their involvement.

Material Factors for Aviation Accidents

Describe fully the observations made by the materiel factors work group. Refer to wreckage distribution diagram, photographs, other diagrams, records, reports, and technical publications. All items will be addressed with P/N, NSN, full maintenance / technical manual DATA, DATES, PAGES, FRAMES, ITEM, PARAGRAPH (as appropriate).

Report results of materiel factors investigation in the appropriate subparagraphs. Those incidents that do not involve materiel failure/malfunctions may be abbreviated to include negative reports, if applicable, for all subheadings except aircraft airworthiness and laboratory analysis. Identify and discuss damage resulting from precrash materiel failure/malfunctions and omit damage that resulted from crash forces exceeding design limits. References can be made to the wreckage distribution diagram, photographs, reports, records, etc. Include the following areas:

Aircraft airworthiness.

Describe the airworthiness of the aircraft. Investigation should include, but not be limited to, maintenance records, historical records, interviews with maintenance personnel, weight and balance records, conduct of preflight, etc. Identify all deficiencies/discrepancies that had a role in the incident. Discuss those technical publications not complied with or inadequate in any manner.

Flight Data Recorders

Report information obtained from flight data recorders, if applicable. The board's analysis of this data, however, should be included in the analysis portion of the report.

Specify type and serial number. Discuss significant data recorded and its relation to the onset, corrective actions taken, and results of the emergency. List all instrument indications and switch positions below.

Airframe

Use subparagraphs to report evidence obtained in the examination of the airframe structure and landing gear components.

1. Present a brief description of the aircraft impact sequence from initial impact to final rest position. If major impact and initial impact are different, so state.

2. Conditions of aircraft during impact and after impact. Include wreckage distribution, ground impact marks, and distortion of aircraft to obtain a general picture of the probable attitude during impact and crash scenario.

NOTE: An inventory should be made for parts accountability.

3. Landing gear / skids. Determine position of landing gear, compression stroke of gear, deformation of skids, and condition prior to accident.

Systems

Report in subparagraphs evidence obtained:

1. Fuel system. Discuss the ability of the crash-worthy fuel system or its failure to retain fuel onboard at impact. Break-away fittings should also be addressed.
2. Warning system. Determine what warned the crew of the impending emergency and specify the particular systems activated at the time of the mishap sequence. Include lights on/off and gauge indications.
3. Flight control system. Check all controls from cockpit to control surfaces for continuity and position. Of particular importance is the induced flight control movement due to seemingly insignificant impacts. An example is an UH-1 which strikes a tree while "traveling" down a valley. The aircraft's right synchronized elevator struck a large tree branch. This caused the synchronized elevator to be pulled back into the tail rotor control tube resulting in a right pedal input. Qualify deformation by both degrees and linear measurement.
4. Hydraulic system. Expand on the operation of the hydraulic system to include leakage, break-away fittings, and evidence of pre-accident deficiencies.
5. Electrical system. Check for the following:
 - a. Availability of electrical power at the time of the accident.
 - b. Electrical fire.
 - c. Proper or improper wiring.
 - d. Lightning strike. If struck by lightning, trace
 - e. path, check magnetic compass for induced field, check antennas, and verify radios operate properly.
 - f. Check all primary lights and use filament examination to determine operation (if required).

6. Stability augmentation, SCAS, autopilot. Determine its operation at the time of the accident and potential roles it may have played.
7. Night vision systems. Discuss operational status of system if it was a factor in the accident or was in use at the time of the accident.
8. Armament system. Discuss status of the system and its contribution to the accident. If applicable, specify system in use, ammo being used and its involvement.
9. Other.

Power Plant

Report evidence obtained during examination. Specifically:

1. Check power plant for mounting (check tail rotor drive shaft).
2. Evaluate all linkages.
3. Check for evidence of overtemp, internal damage, i.e., molten metal in tail cone, oil leaking from exhaust, discoloration, damage to power turbines, etc.
4. Obtain all serial numbers and locate all components.
5. What was the engine's operation prior to the mishap?
6. Check the fuel system for leaks, but ensure the engine's fuel filters are examined.
7. Are turbine wheels free to turn?
8. Examine and report on engine with regard to the compressor, combustion, turbine, exhaust, accessory, and fuel control sections.

Rotor System or Propeller.

1. Was the rotor or propeller under power at the time of the accident? If so, how much (if possible)?
2. Elaborate on all major blade or propeller strikes in relation to accident sequence.

Transmission / Gearboxes and Drive Train

Report evidence obtained during examination. List all discrepancies and their effect.

1. Check chip detectors and remove all screens
2. Check for foreign material.
3. Check all internal lubrication lines.

4. Check for mounting and fractures.

Laboratory analysis

Report results of:

1. Fuel, oil, hydraulic, chemical
2. Teardown analysis, i.e., CCAD / OEM

Accident Site Information

Discuss adequacy; include:

1. Location (i.e., grid coordinates and by reference to common features) .
2. Dimensions.
3. Lighting / marking.
4. Obstructions.
5. Type of surface and condition, slopes, etc.

Fire

Discuss role of fire, to include:

1. When did it occur?
2. How was it detected?
3. Ignition source.
4. Combustible materials.
5. Location.
6. Propagation.
7. Attempts to extinguish.

Electromagnetic environmental effects

E³ Check, within 5 miles, all RF emitters and their relation to the accident aircraft. A diagram should be included as a Tab. Determine with systems assistance the RF emitters' effect upon the aircraft.

Non-Aviation Accident Narrative Details

Discuss each item in narrative form. Don't just answer the question. Do not restate the question. Discuss only those items applicable to the type accident. If a paragraph does not apply (i.e., shooting instead of vehicle), use the standard statement: Not a causal factor in this accident or N/A.

Pre-accident Phase (Use tabs to amplify)

1. State the mission.
2. Discuss the purpose of the mission.
3. Who tasked the organization/individual with the mission.
4. Identify the individual that authorized the mission.
5. Identify the personnel involved in the mission (do not include SSN).
 - a. Duty assigned.
 - b. Personnel position.
 - c. How/when were they informed of the mission.
6. Discuss mission preparations. Include:
 - a. Pre-mission planning.
 - b. Orders.
 - c. Briefings.
 - d. Equipment inspections.
 - e. Dispatching of vehicles / systems / equipment.
 - f. Identify equipment--include serial/lot numbers.
7. Was there a sense of urgency associated with the mission?
8. Were there any delays prior to vehicle departure?
9. Elaborate on mission sequence of events to the time of the accident. Include:
 - a. Wake-up times.
 - b. Meal times (if appropriate).
 - c. Workday termination times.
 - d. Departure times.
 - e. Identification of element involved in accident.
 - f. Accident location (grid, post, road, etc.).

Accident Phase.

1. Time the vehicle / system / equipment departed on the mission.
2. Describe any emergency encountered - sequence of events leading to and including the accident.
 - a. When it started.
 - b. What was done.
 - c. Consequences.
 - d. Symptoms.
 - e. Warnings.
 - f. Actions / reactions of personnel or equipment.
3. Time of the accident.

Post-accident Phase.

1. Injuries sustained in the accident.
 - a. Location of personnel / equipment at the conclusion of the accident.
 - b. Summary of individual injuries.
2. Condition of the vehicle / system / equipment, i.e., overturned, engine still running.
3. Reactions of personnel/equipment after the accident. Include who discovered the accident victim(s).
4. Summarize how the victim(s) were evacuated and survival/rescue.
5. Rescue and first aid efforts.
 - a. Who gave first aid / CPR. If neither were administered, determine why.
 - b. MEDEVAC / ambulance.
 - 1) Who called the MEDEVAC / ambulance and when.
 - 2) Time of arrival on the scene.
 - 3) Were first aid / rescue efforts continued en route to the hospital.
 - 4) Was more than one MEDEVAC / ambulance utilized.
 - 5) If so, why.
 - 6) Time of arrival of the patient(s) at the hospital and explanation of any en route delays.

- 7) Condition / status of patient(s) at hospital time of death (if applicable).
- 8) Identify all medical facilities that provided treatment.

Human Factors Investigation for Non-Aviation Accidents

Summarize background and qualifications on anyone associated with or who may have played a part in the accident (those who made, caused or contributed to the errors), i.e., commanders, operations personnel, passengers, etc. (Only on personnel directly involved with the accident).

Personnel Background Information

1. Brief personal history.
 - a. Date and place of birth.
 - b. Civil schools, i.e., high school, college, trade school, with dates of completion (only if it has a bearing on this particular accident).
 - c. Civil work/employment (only if it has a bearing on this particular accident).
 - d. When they entered the service (if applicable).
2. Brief US Army history (if applicable). Include:
 - a. Time of entry until assigned to present organization.
 - b. Training/MOS assignment, qualifications, and current promotion.
 - c. Schools attended and completion dates.
3. Describe each person's qualifications and readiness to perform the mission.
4. Was the operator qualified.
5. Explain any irregularities.
6. Experience level with vehicle/system/equipment.
7. Briefly discuss the person's professional reputation in organization using opinions of peers, subordinates, supervisors and others who have worked with them.
8. Background report. Include:
 - a. Evidence of vehicle / system / equipment safety violations.
 - b. Evaluation boards, i.e., re-up, promotion, etc. (if applicable to accident).
 - c. History of prior violations or accident involvement - explain.
 - d. Physically qualified to do the job.

9. Explain irregularities. If none, so state. Include:
 - a. Social habits.
 - b. Financial status.
 - c. Marital well-being.
 - d. Off-duty schooling.
 - e. Recreational habits.
 - f. Sleep / dietary habits.
 - g. Disciplinary actions and awards (if applicable).
10. Medical information. Discuss:
 - a. The individual's medical history. Include medical abnormalities (psychological or physiological) which may have impaired their actions.
 - b. Determine the date of his/her last physical examination.
 - c. Are they on any type of medication? If so, what type, source, side effects, dosage, and effects it may have on performance.
 - d. Determine the blood/alcohol level.
 - e. Drug screen - urine samples must be sent to a contract hospital or AFIP for testing. Include statement of results.
 - f. Injury / fatality information.
 - 1) Were injuries related to vehicle/system/equipment survivability.
 - 2) Were problems associated with escape - survival rescue.
 - 3) Explain how the individual was injured (what caused the injury) and what the injuries were.
 - 4) How long will the individual be hospitalized.
 - 5) Fatality - explain fatal injuries and how they were caused.
 - 6) Summarize the autopsy report to explain fatal injuries.

Personnel Management.

1. How did the organization manage/use the individuals who caused, contributed, or who was a victim of the accident.
2. Begin with the date of assignment to current organization.
 - a. Review.
 - 1) Experience upon assignment.
 - 2) Qualifications upon assignment.

- b. Report how individual was:
 - 1) Tasked.
 - 2) Trained.
 - 3) Managed up to the date of the accident.
- c. Discuss additional duties; percent of time given versus time given to primary duty.
- d. Report qualifications acquired since assignment.
- e. Review procedures involved with mission crew / personnel selection.
 - 1) Evaluate timeliness of notification.
 - 2) Personnel/mission compatibility.
 - 3) Experience of individuals.
- f. Evaluate fatigue factors which may have had an effect on the mission.
- g. Review organization sleep/work plan.
 - 1) In effect.
 - 2) Being monitored.
 - 3) Being complied with.

Vehicle / System / Equipment Suitability.

- 1. Discuss suitability of accident vehicle/system/ equipment to perform the mission.
- 2. Primary purpose of vehicle / system / equipment.
- 3. Design limitations of vehicle/system/equipment as found in applicable operators manuals.
- 4. Brief description of condition of vehicle / system / equipment and if use exceeded its limitations.

Communications.

- 1. Discuss evidence relating to:
 - a. Communications equipment (visual or electronic signals, etc.)
 - b. Communications occurring:
 - 1) Among the crew / personnel.
 - 2) Between the crew / individuals and passengers.

- 3) Between the crew / individuals and outside services, i.e., operations, command and control.
- 4) Agency-to-agency / service-to-service.
2. Language difficulties.
3. Clarity of verbal / written communications.
4. Time delays and reasons for delays.
5. Communications adequacy.

Environmental Conditions.

1. Weather:
 - a. Weather conditions prevailing at the time of the accident (include previous weather conditions, if applicable) and where obtained.
 - b. Applicable sky conditions, visibility, winds (surface and altitude), and contributing conditions such as rain, snow, smoke, etc.
 - c. Paragraph should be written in easy to understand terms and not in aviation terms.
 - d. If mission involved night operations, details of available illumination should be added if it applied to the accident.
 - e. For parachute accidents. Determine winds aloft (drop altitude) and surface winds.
2. Other Than Weather. Evaluate other factors which may have been present. Examples:
 - a. Dust / obscurant.
 - b. Night vision.
 - c. Heat / cold.
 - d. Surface / terrain conditions.

Support Services.

1. Ground.
 - a. Discuss evidence which relates to role in accident, i.e., ground guides, road guards, traffic signs/ signals, etc.
 - b. Dispatch procedures, if applicable.
2. Air. Aircraft.

Accident Survivability.

1. Accident survivability of vehicle/system/equipment in terms of accident sequence, impact conditions, accident forces.
 - a. Occupant injury relationship to survivability.
 - b. Restraint systems / rollbar protection (use/nonuse) (equipped/non-equipped).
 - c. Protection clothing / equipment.
 - d. Backup / emergency systems (reserve parachute).
2. Design of vehicle / system / equipment.

Rescue Operations.

1. Describe factors that may have enhanced or inhibited the success of the survival / rescue situation.
2. Describe the individuals location.
3. How did they exit and any difficulties encountered.
4. Position of the vehicle / system / equipment at the time of egress.
5. How and when MEDEVAC was requested and if needed.
6. Times of response, pickup and delivery of the victim(s).
7. Type / methods of first aid and CPR treatment prior to and during MEDEVAC.

Accident Site Information

Fully describe the accident site and any peculiarities found. Note whether the site was preserved. Describe in detail slopes, obstacles, conditions, drainage, composition, vegetation, etc.

Special Investigation

Report the results of any special investigation conducted, i.e., so many like vehicles were checked for similar problems on the same installation, special tests or studies conducted by other agencies (private, government) for the board.

Witness Investigation.

1. Briefly indicate number of witnesses interviewed.
2. Identify each by duty position.
3. Indicate whether or not witnesses generally agree.

4. Discuss conflicts.
5. Discuss credibility.

Materiel Factors Investigation for Non-Aviation Accidents

Describe fully the factual observations made by the materiel factors work group. Refer to wreckage distribution diagram, photos, other diagrams, records, reports and technical publications. Describe whether damage was a result of normal operations or the accident.

Vehicle/System/Equipment Worthiness.

1. Investigation should include, but not be limited to, complete technical inspection, covering such areas as:
 - a. Maintenance records.
 - b. Historical records.
 - c. Interviews with maintenance personnel.
 - d. Operator prevention maintenance.
 - e. Dispatch records.
2. Discuss all recorded and unrecorded faults that had a role in the accident.
3. Discuss those technical publications not complied with or found inadequate. Indicate technical reference manuals (dates of the manual, chapter/page, etc., include manual extracts).

Systems

Note all discrepancies and their effect on the operation of the vehicle/system/equipment. Use photographs to report evidence obtained in the examination of the following:

1. Engine.
2. Transmission.
3. Steering / control.
4. Brake.
5. Fuel.
6. Electrical.
7. Hydraulic.
8. Frame.
9. Suspension.
10. Tires.
11. Weapons.

Laboratory analysis.

1. Report results of laboratory tests.
2. If a teardown analysis of materiel has been completed, report the results in this paragraph.

Fire.

1. When did it occur.
 2. How was it detected.
 3. Ignition source.
 4. Combustible material.
 5. Location.
 6. Propagation.
- Attempts to extinguish.

Accident Cost Calculations:

Army accident costs are based on the severity of injury, occupational illness, or property damage (Army and non-Army) resulting from Army operations. For accident reporting purposes, the logistical disposition of damaged property/equipment (whether or not it is repaired or replaced) will not negate the requirement to report the accident.

Injury and Illness Costs

These costs are used solely to provide total accident cost since cost is generally proportional to severity of injury. They are not used for determining accident classifications. Actual time lost may not be known at the time the accident report is submitted. If it is not known, an official estimate of lost workdays, made by a competent medical authority, will be used in computing the cost. The cost data in table 4 is used to compute the cost of injuries and occupational illnesses to Army personnel for safety/accident reporting purposes only.

1. The figures include the cost of pay while away from work, medical treatment, hospitalization, dependent survival, unused training costs, gratuities, compensation, disability retirement, and burial.
2. The figures do not include indirect costs associated with the accident such as wages lost to employees not injured (production loss), cost of hiring and training new employees, cost of investigating the accident, public liability costs, and costs to lease equipment if applicable.

Table 4

| | Submarine and/or Flying Officer | Other Officer | Enlisted Personnel / Cadets | Civilian Employees ⁴ | Program Youth and/or Student Assistance Program Employees and Foreign Nationals |
|---|---------------------------------|----------------|--|---------------------------------|---|
| Fatality | \$1,100,000.00 | \$395,000.00 | \$125,000.00 ¹ \$270,000.00 ² | \$460,000.00 | \$270,000.00 |
| Permanent Total Disability ³ | \$1,300,000.00 | \$845,000.00 | \$500,000.00 | \$385,000.00 | \$390,000.00 |
| Permanent Partial Disability ³ | \$210,000.00 | \$145,000.00 | \$115,000.00 | \$250,000.00 | \$180,000.00 |
| Lost Time Case | \$425.00 / day | \$425.00 / day | \$375.00 / day | \$350.00 / day | \$300.00 / day |
| Days Hospitalized ⁵ | \$466.00 / day | \$466.00 / day | \$466.00 / day | \$466.00 / day | \$466.00 / day |
| Restricted Work Activity | \$120.00 / day | \$120.00 / day | \$120.00 / day | \$120.00 / day | \$120.00 / day |

1. Non-flight crew member fatality.
2. Flight crew member fatality.

3. Total costs, including days involving lost time and days hospitalized.
4. For civilian employees, use actual worker compensation costs when available.
5. Includes cost for days involving lost time.

Damage Costs

Costs of damage to Army property and equipment will be computed using criteria in AR 735-11, to include such things as actual cost of new or used parts or materials and labor cost at the standard rate of \$16 per hour, unless the actual labor cost rate is available within the reporting time limits. When damaged equipment or facilities will not be repaired or replaced, the cost reported will be the acquisition cost (Army Master Data File (AMDF)) plus the estimated cost to clean up the site. Credit should be taken for the estimated scrap value of the parts that can be reused.

Costs Peculiar to Aircraft Accidents

Destroyed, missing, or abandoned aircraft cost. The cost of destroyed, missing, or abandoned Army aircraft is to be computed per current aircraft cost tables. The cost of aircraft repair will be updated if the depot's estimated cost of damage (ECOD) is significantly different (10 percent or non-repairable) from the initial or reported ECOD. Include the cost of all modifications.

Army Parts Cost

1. For destroyed parts or components, the cost of replacement per current AMDF or Base Master Data File (BMDF), which can be found in technical supply or direct support units.
2. The cost to repair damaged parts.

Direct Man-hour Costs

For Class A and B accidents, these man-hours will be reported on DA Form 2404 (Equipment Inspection and Maintenance Worksheet). DA Form 2404 will accompany the appropriate DA 2397-R-series form, and will indicate the total cost of direct man-hours and replacement parts necessary to make the aircraft flyable. For Class C and D accidents and Class E and FOD incidents, this information will be reported on DA Form 2397-AB-R. Direct man-hours include:

1. The cumulative (estimated) man-hours required to remove, repair, and replace damaged aircraft assemblies, subassemblies, or components.
2. Man-hours required to restore the aircraft to serviceable condition if economically repairable.

3. Man-hours expended in removing and replacing undamaged aircraft components in order to remove, repair, or replace damaged components.
4. Man-hours required to remove and replace a part that is not economically repairable.
5. Man-hours expended to determine damage amount.

Man-hours not Included in Aircraft Accident Cost.

1. Depot and contract overhaul man-hours.
2. Time used in setting up equipment preparatory to actual repair of the aircraft.
3. Man-hours used in removing, replacing, and inspecting undamaged parts and components solely to satisfy technical manual inspection requirements.

Replacement of Damaged Components

Removing a damaged component and replacing it with a new component to decrease the number of man-hours and costs for purposes of accident classification is prohibited. If another like component is available, it may be installed so that the aircraft will be available for flight. However, the total best available estimated man-hour costs to remove, replace, and repair the damaged component will be included for accident classification.

Cost Computation of Aircraft Engine

When an aircraft engine is damaged as a result of the accident sequence to the extent that it must be returned to a depot, the cost of such damage or inspection will be computed at 17 percent of the unit cost.

Cost Computation of Helicopter Main Rotor Blades

The cost of damaged helicopter main rotor blades will be computed at the actual cost to repair (if known), ECOD, or AMDF costs for replacement.

Cost Computation of Other Aircraft Components

When a major aircraft component (as defined in the appropriate maintenance Technical Manual (TM)) is damaged to the extent that it must be returned to depot for overhaul or inspection, the reported cost for repair will be computed at 15 percent of the unit cost. Examples of aircraft major components are as follows:

1. Helicopter tail booms or empennages.
2. Aircraft wings or fuselage.
3. Helicopter main rotor heads.
4. Main transmission or gearbox(es).
5. Landing gear assemblies (exclusive of wheels, brakes, tires, outriggers, or protective gear, helicopter skids, cross tubes, and tail gear).
6. Vertical stabilizer (exclusive of rudder), horizontal stabilizer (exclusive of elevator), and stabilators or similar devices.

Damage not Included in Aircraft Accident Costs.

1. Fair wear and tear.
2. When a malfunction or failure of a component part results in damage to another component, the FWT exception does not apply.
3. Damage to helicopters incurred solely from flying debris during operations in confined areas and unimproved landing sites is considered FWT.
4. Discovery of cracks, breaks, wrinkles, or ruptures during required periodic or scheduled inspections is considered FWT. They will be reported per DA Pam 738-751.
5. Damage to an aircraft as a direct result of action by an enemy force or terrorist group (considered "combat loss").
6. Intentional in-flight controlled jettison or release of mission essential, aircraft equipment/stores that are not essential to flight (for example, canopies, doors, drag chutes, hatches, life rafts, auxiliary fuel tanks, missiles, drones, rockets, non-nuclear munitions, and externally carried equipment). Intentional emergency jettison of cargo (internal or external) when aircraft control is essential. (There must be no injury, or reportable damage to the aircraft or other property. Also, intentional controlled jettison of missiles, drones, or non-nuclear munitions must not have resulted from their malfunction.)
7. Planned destruction of Army experimental or prototype aircraft during authorized testing or combat training.
8. Authorized intentional destruction of Army property or equipment.
9. Aircraft FOD (other than engine(s)) discovered during scheduled maintenance.

Findings and Recommendations

Instructions for narratively reporting findings and recommendations. Findings will be categorized as Found; Primary Cause, Found; Contributing, Found; Increasing Severity of Damage / Injuries, or Found; Not Contributing. Each cause-related finding must be substantiated.

Findings

1. An explanation of when and where the error, material failure, or environmental factor occurred in the context of the accident sequence of events; e.g., “during preflight,” “while driving,” etc.
2. Identification of the individual involved by duty position; or the name and part number or national stock number of the part, component, or system that failed; or a description of the environmental factor, as appropriate.
3. For human error, identify the task or function the individual was performing and an explanation of how it was performed improperly. The error could be one of commission or omission; e.g. individual performed the wrong task or individual incorrectly performed the right task. In the case of material failure, identify the mode of failure; e.g. corroded, burst, twisted, decayed, etc.
4. Identification of the directive (i.e. Maintenance / technical manual, SOP, etc.) or common practice governing the performance of the task or function.
5. An explanation of the consequences of the error, material failure, or environmental effect. An error may directly result in damage to equipment or injury to personnel, or it may indirectly lead to the same end result. A material failure may have an immediate effect on equipment or its performance, or it may create circumstances that cause errors resulting in further damage / injury inevitable.
6. Identification of the reasons (failed control mechanisms) the human, material, environmental conditions caused or contributed to the incident. Refer to the control mechanism failures found Appendix A.
7. A brief explanation of how each reason contributed to the error, material failure, or environmental factor.
8. Instructions for reporting findings that did not cause or contribute to the incident, but did adversely affect the severity of the accident results. The board should report those factors that contributed to the severity of the injury or the extent of the damage. Personnel injuries attributable to defects in life support equipment, personal

protective clothing and equipment, i.e., seatbelts, must also be addressed. The findings and recommendations fitting this category will be separated from those that caused the incident and preceded by the following statement: **THE FINDING(S) LISTED BELOW DID NOT DIRECTLY CONTRIBUTE TO THE CAUSAL FACTORS INVOLVED IN THIS INCIDENT; HOWEVER, IT (THEY) DID CONTRIBUTE TO THE (SEVERITY OF INJURIES) OR (INCIDENT DAMAGES).**

9. Instructions for reporting findings that did not cause or contribute to the incident nor to the severity of injuries or damage. The board should report errors, material failures, or other hazards that did not contribute to the incident but have a high potential for causing other incidents or adversely affecting the safety of operations and individuals if not corrected. Reporting these deficiencies will ensure they receive the attention of leadership and safety personnel throughout the Department of State. The findings and recommendations fitting this category will be separated from those that caused the incident or those that did not cause the incident but contributed to the severity of injuries / damage. They will be preceded by the following statement: **THE FINDING(S) LISTED BELOW DID NOT CONTRIBUTE TO THE THIS INCIDENT; HOWEVER, IF LEFT UNCORRECTED, IT (THEY) COULD ADVERSELY AFFECT THE SAFETY OF OPERATIONS AND PERSONNEL.**

Recommendations

Each finding will be followed by recommendations having the best potential for correcting or eliminating the reasons for the error, material failure, or environmental factor that caused or contributed to the incident. Recommendations will not focus on organizational steps addressing an individual's failure in a particular case. To be effective at preventing incidents in the future, recommendations must be stated in broader terms. The board should not allow the recommendation to be overly influenced by existing budgetary, material, or personnel restrictions. In developing the recommendations, the board should view each recommendation in terms of its potential effectiveness. Each recommendation will be directed at the level of command / leadership having proponenty for and is best capable of implementing the actions contained in the recommendation.

Processing and Command Review of Accident Reports

All accident investigation reports will be processed by each reviewing agency.

1. Initial review. The initial reviewing official will normally be the commander of the unit involved or the commander of the supervisor directly responsible for the operation, material, or persons involved in the accident. This official will review the accident report, provide written concurrence or non-concurrence with the findings/recommendations, ensure that factual data are circulated within the unit, ensure recommendations which can be put into effect at the unit level are implemented, and forward the original through the designated MACOM chain of command to the approving authority.
2. Installation-level safety manager review. The installation-level safety manager will ensure that the entire accident report and the SAFETY OFFICE USE ONLY section of each form (DA 2397-R-series form, DA Form 2397-AB-R, DA Form 285, or DA Form 285-AB-R) is prepared per instructions, and accident data are analyzed for prevention purposes. (This function may be performed at tenant activity level if the organization has a full-time safety and occupational health professional assigned.)
3. Approving authority. MACOM commanders or their designated representatives will approve or disapprove each finding and recommendation made by the accident investigation board as amended by reviewing officials. The MACOM safety office will ensure that the accident report is complete and take additional actions when required. MACOM-level recommendations will be tracked using the MACOM RTS. Recommendations for action by higher headquarters or other agencies may also be included.

Reports prepared by USASC

Reports prepared by USASC investigators (CAI) will be completed within 60 days and returned through the chain of command. The original and one copy of the report will be forwarded to the unit experiencing the accident; another copy will be forwarded directly to the appropriate MACOM. Commanders will review the original report, concur or non-concur in writing, and return the report through channels to the MACOM. The MACOM will ensure the original copy of the report is returned to USASC within 90 calendar days from the date of the USASC letter of transmittal.

Processing accident reports

Prepare one original and two copies of the appropriate forms (DA Form 285, DA 2397-R-series form, DA Form 2397-AB-R, or DA Form 285-AB-R) and supporting documents. Copies will be retained by the appointing authority's Safety Office and any other offices as directed by the MACOM.

Note: In actual combat situations, use of carbon paper is authorized. Send ARNG accident reports through:

ARNGRC
ATTN: NGB-AVN-S
111 South George Mason Drive
Arlington, VA 22204-1382
to Commander, USASC.

Aviation Accidents and Incidents

1. Class A and B. The original aviation accident reports (DA 2397-R-series forms) will be forwarded through channels to the appointing authority's MACOM and mailed to:

Commander, USASC
ATTN: CSSC-I
Fort Rucker, AL 36362-5363

within 90 calendar days after the accident.
2. Class C. The original or electronic copy of DA Form 2397-AB-R will be forwarded to Commander, USASC, to arrive within 30 calendar days of the accident.
3. Class D, E, and FOD. The original or electronic copy of DA Form 2397-AB-R will be forwarded to the Commander, USASC, within 10 calendar days of the accident.

Ground accidents

1. Class A and B on-Duty. The original DA Form 285, completed per this regulation and prepared by an accident board (CAI/IAI), will be forwarded through channels to the appointing authority's MACOM and mailed to:

Commander, USASC
ATTN: CSSC-I
Fort Rucker, AL 36362-5363

within 90 calendar days after the accident.

2. Class A and B off-duty and all Class C and D. The original or electronic copy of DA Form 285-AB-R will be forwarded to the Commander, USASC, within 30 calendar days of the accident.

Changes to Accident Reports and Request for Extension

1. A change to an accident report will be submitted when:
 - a. An event occurs that changes the classification of an accident (for example, from Class C to Class B, or Class B to Class A).
 - b. Additional information is discovered that was not known when the initial report was submitted. Changes to reports will not be submitted for changes in number of days lost or property damage estimates, except as indicated previously.

2. Requests for extension beyond the accident report due date will be made telephonically to the Quality Control Section, USASC:

Commercial: (205) 255-9137 / 3493

DSN: 558-9137 / 3493

by the MACOM Safety office.

HQDA Accident Report Evaluation, Review, and Action

The USASC will review all recordable accident reports for regulatory and technical compliance.

1. The USASC will evaluate all recordable DA-level recommendations for entry into the RTS. USASC will also
 - a. Establish and maintain a formal automated system to track actions on DA-level recommendation(s) from accident reports.
 - b. Provide written notification to the command, organizations, or agency responsible for implementing or initiating corrective action on DA-level accident recommendation(s).
2. MACOM, Program Executive Officers (PEO), and DA Staff Agencies and Activities will
 - a. Establish and maintain a formal system to track actions taken on DA-level recommendation(s) from accident reports for which they are responsible.
 - b. Establish and maintain a formal system to track actions taken on unit level and higher level recommendation(s) from Class A, B, and C accident reports for units, organizations, agencies, or activities under their respective command or control.
3. Acknowledgments: upon receipt of written notification of recommendations, the responsible DA-level organization will

provide an initial response to the USASC within 60 calendar days as to corrective action(s) initiated or planned. Interim and follow-up reports are required every 90 days after initial response until the action(s) is closed.

4. Return non-concurrence or rebuttals: all DA-level recommendations not accepted or implemented by the responsible command, organization, agency, or activity will be returned to the Commander, USASC, with support rationale within 60 calendar days after initial notification.

Accident Records

The Commander, USASC, will receive Army accident data, control its quality, and enter it into the ASMIS. The Commander, USASC, will also act as the official Army custodian and repository for all recordable Army accident information.

Access to and safeguarding of accident records

1. For regulatory guidance regarding safeguarding of accident records, see AR 385-40, Chapter 1.
2. For regulatory guidance regarding FOIA, see AR 385-40, Chapter 1.

Maintaining accident records

All recordable records required by this regulation and maintained by USASC will be retained at least 10 years. The current historical data will include the current fiscal year and the previous 5 fiscal years.

Appendix A

Accident Causation

Historical View of Accident Causation

In order to successfully design and manage an effective accident prevention program, it is first necessary to understand what causes accidents.

1. Early man attributed hurtful happenings or accidents to the spirits. For centuries this approach was predominant.
2. Later a more sophisticated view was accepted- the person injured was somehow at fault. He was at fault because he should be "Punished", was careless", or just "stupid."
3. During the early industrial revolution, factory managers reasoned workers who were injured, were hurt because they weren't "careful." Accidents were considered a natural side effect of production in other words the cost of doing business. There was no way to change human nature, people always had been and always would be careless.

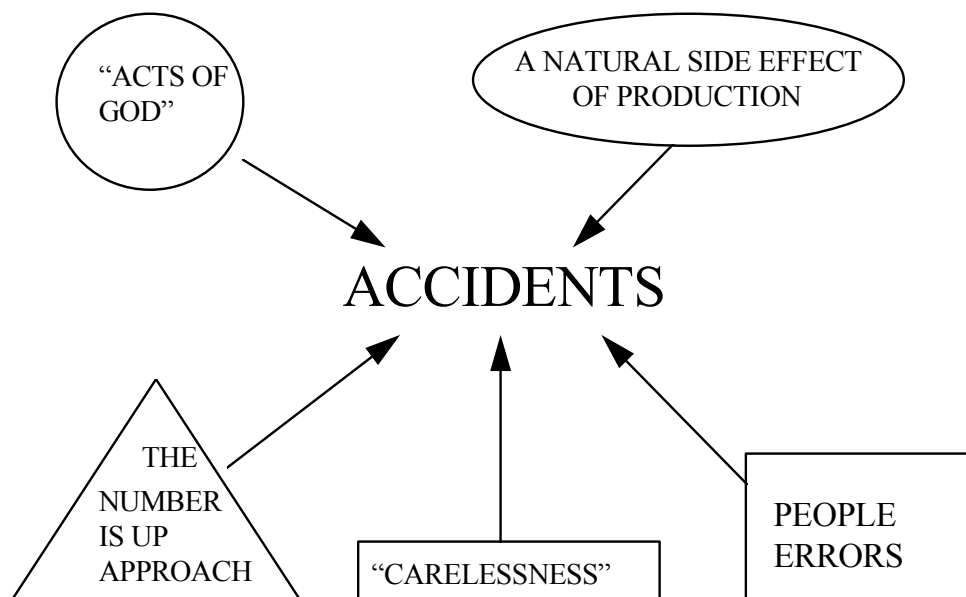


Figure 1

4. The court system upheld the view of individual responsibility for safety. The injured worker had to sue, and to win, the employer had to be found completely to blame for negligence, and this was rare. Public opinion rose against the "worker alone-is-to-blame" theory. The courts responded by being more responsive to workers' claims. State legislatures followed suit and by 1908 every state had an employer's liability law
5. Employers now with financial responsibility for an injured worker began to see that financially at least, it would be more cost effective to prevent accidents. The only theory of what caused accidents was personal carelessness. Individual businesses and factories used a hit-or-miss kind of effort in designing a safety program. These efforts enjoyed varying degrees of effectiveness.

The Heinrich Model of Accident Causation

The Heinrich model to accident causation has been the basic approach in accident prevention and has been used mostly by safety societies and professional people since its publication in 1932. This was the first scientific approach.

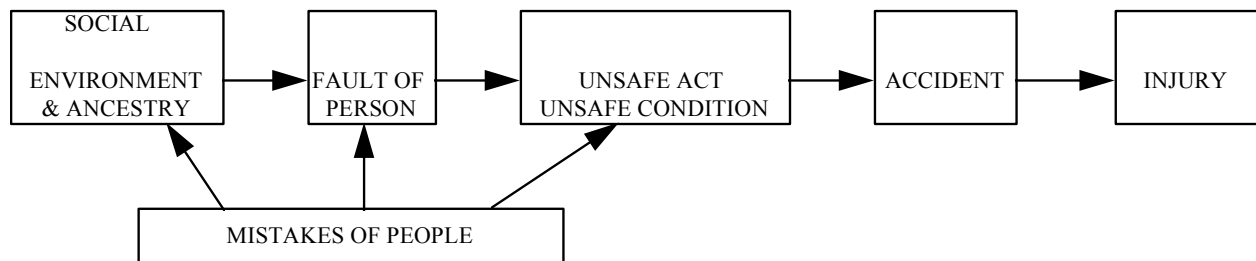


Figure 2

1. Heinrich began with the fact of injury and traced it back to its causes. An injury, he reasoned, was caused by an accident, and an accident was caused by either an unsafe act on the part of the injured person or an unsafe condition in the environment. The next step back in Heinrich's accident causation model again place blame squarely on the individual and then, in the next step, makes a vague reference to the person's social environment and ancestry as the causation reason for his carelessness or fault.
2. This was a major breakthrough because it removed some of the blame from the individual worker. The worker might have been careless but it might also have been caused because the machine was poorly designed or maintained, thus making it likely whoever worked with it would be injured. Managers could see the rationale behind this theory. Since one of the remedies against accidents

dealt with 'things' instead of people, employers had something concrete to correct. Machines, business and factory layouts were looked at with a new eye and were found to be sadly lacking in safety features. A big push began to engineer for safety. This engineering for safety has been very effective and is still a big area of responsibility under the Occupational Safety and Health Act.

3. However, engineering out unsafe conditions was only part of Mr. Heinrich corrective action sequence. The other three were: instruction, which workers were taught how to do their particular job safely; persuasion and appeal, in which people were exhorted to behave safely and which prompted all those reams of paper being used for posters; and, discipline, in which, when all else has failed, a worker was threatened with *loss* of money or job if his safety performance did not improve. From these came the three "E's" of accident prevention: **Engineering, Education, and Enforcement**.

Modern Accident Causation Model

The modern causation model does a better job of depicting the causes of accidents. It is a little more complicated than Heinrich's model, but with it we can demonstrate that it does a lot more in helping to understand how accidents are caused and *how* to correct those causes.

1. The modern model parallels Heinrich's to a certain point. A few words have been changed. Injury is called **Result** indicating it could involve damage as well as Personal injury and the result can range from no damage to the very severe.

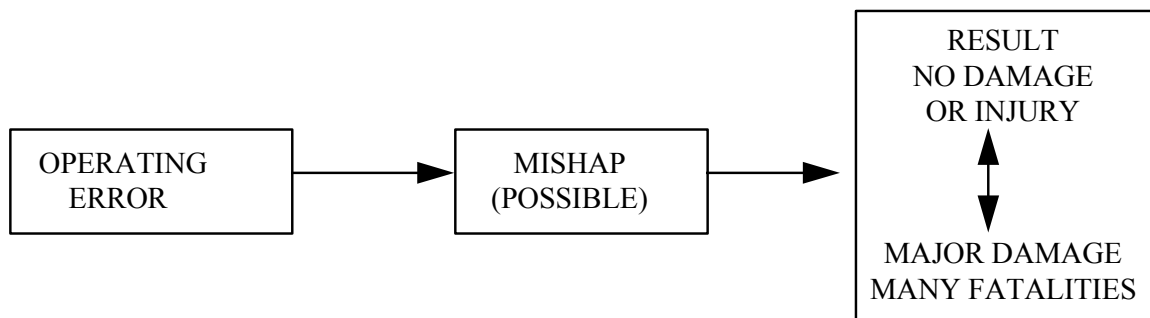
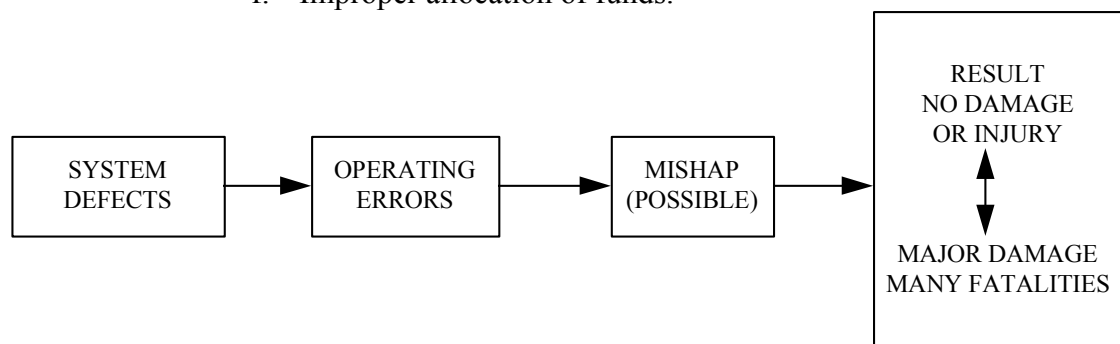


Figure 3

2. The word Mishap has been used rather than Accident to avoid the popular misunderstanding that an accident necessarily involves injury or damage.
3. Finally, the term Operating Error has been substituted for Unsafe Act & Unsafe condition to better reflect that both are essentially the same thing, resulting from mistakes made by individuals. Examples of operating errors include:
 - a. Taking an unsafe position.
 - b. Stacking supplies in unstable stacks.
 - c. Poor housekeeping.
 - d. Removing a guard.
4. The addition of system defects breaks away from Heinrich and adds a concept that virtually revolutionizes accident prevention. This key concept is the single most important concept yet developed in accident prevention theory. it changes what we seek to do and how we do it. System defects are weaknesses in the way the system is designed or operated. Typical examples of system defects include:
 - a. Improper assignment of responsibility.
 - b. Creation of an improper climate of motivation.
 - c. Inadequate provisions for training and education.
 - d. Poor provisions for providing suitable equipment and supplies.
 - e. Improper procedures for selection and assignment of personnel.
 - f. Improper allocation of funds.



OPERATING ERRORS OCCUR
BECAUSE OF PEOPLE'S FAULTS,
BUT MORE IMPORTANTLY, THEY
OCCUR BECAUSE OF
SYSTEMS DEFECTS

Figure 4

5. The next question is, "What causes systems defects?" The answer is management errors, because managers are the people who design systems. In organizations without a safety staff, the buck stops with the manager.



Figure 5

6. However, if the organization has a safety staff, we can answer the question, "Why did the manager make the error?" by answering, "Perhaps because he was poorly supported by the safety program responsible for advising him on safety matters." We may further conclude that when safety programs are weak and ineffective, it is generally because safety managers make them that way.
- Safety Management Error - a weakness in the knowledge or motivation of the safety manager that permits a preventable defect in the safety program to exist.
 - Safety Program Defect - a defect in some aspect of the safety program that allows an avoidable error to exist. Examples:
 - Ineffective information collection.
 - Weak causation analysis.
 - Poor countermeasures.
 - Inadequate control.
7. There is a near miss relationship to the accident/results. The initial studies showed for each disabling injury, there were 29 minor injuries and 300 close calls/no injury. Recent studies indicate for each serious result there are 59 minor and 600 near misses.

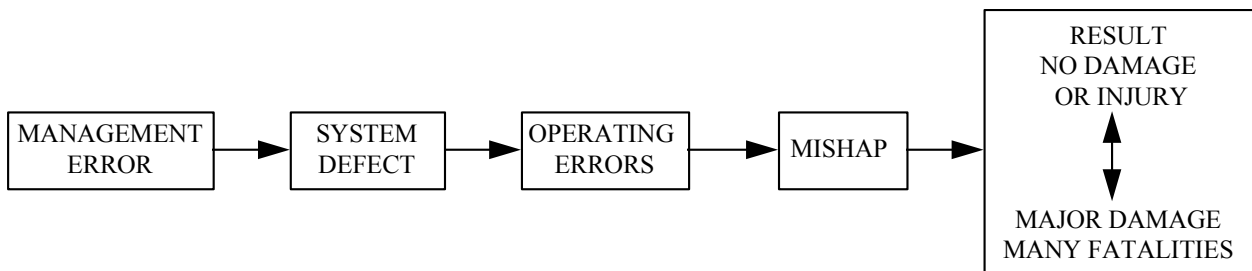


Figure 6

NEAR MISS RELATIONSHIP



Figure 7

Countermeasure Avenues

Countermeasure potential. The modern causation approach opens seven avenues through which we can initiate countermeasures. None of these areas overlap. These avenues are:

1. Safety management error.
2. Safety program defect.
3. Management error.
4. Systems defect.
5. Operating error.
6. Mishap.
7. Result.

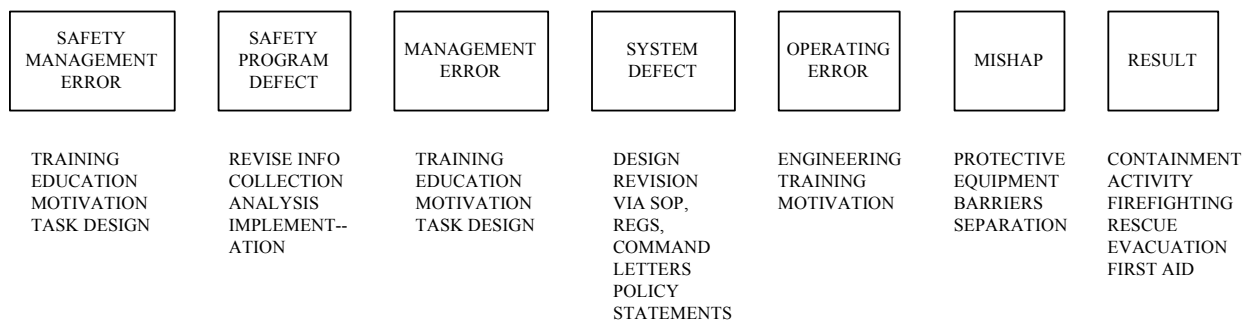


Figure 8

Countermeasures

The modern causation model opens so many effective countermeasures to the safety manager that a major problem becomes selecting the best total combination consistent with available resources. Potential countermeasures for each modern causation approach include:

1. Safety management error - Training, Education, Motivation, and/or Task Design.
2. Safety program defect - Revise information collection, analysis and/or implementation.
3. Management error - Training, Education, Motivation and/or Task Design.
4. Systems defect - Design revision via SOP, Regulations, Coffunand Letters, and/or Policy Statements.
5. Operating error - Engineering, Training, and/or Motivation.
6. Mishap - Protective equipment, protective barriers, and separation can eliminate or reduce mishap potential. For example, storing ammunition in bunkers or using protective eyewear when grinding.
7. Result - Containment activity can lessen the severity of injuries and/or losses resulting from a mishap. These activities include firefighting, rescue, evacuation, and first aid.

System Components

A system is simply a group of interrelated parts which, when working together as they were designed to do, accomplish a goal. Using this analogy, an installation or organization can be viewed as a system. The elements of the Army System Model are:

1. Tasks – Communications, controls, arrangements, demands on men, and time aspects.
2. Person.
 - a. Selection mentally, physically, emotionally, and qualified.
 - b. Motivation positive, negative, and retention.
3. Training.
 - a. Types - initial, update, and remedial.
 - b. Targets - operating, supervisory, and management.
 - c. Considerations - quality and quantity.

4. Environment - Facilities, grounds, lighting, noise, and ventilation, and weather.
5. Material - machine design, supplies, and maintenance.

| TASK | PERSON | TRAINING | ENVIRONMENT | MATERIAL |
|----------------|-------------|----------------|-------------|----------------|
| COMMUNICATIONS | SELECTION | TYPES | LIGHTING | MACHINE DESIGN |
| CONTROLS | MENTALLY | INITIAL | NOISE | SUPPLIES |
| ARRANGEMENTS | PHYSICALLY | UPDATE | VENTILATION | MAINTENANCE |
| DEMANDS ON MEN | EMOTIONALLY | REMEDIAL | OTHERS | |
| TIME ASPECTS | QUALIFIED | TARGETS | FACILITIES | |
| | MOTIVATED | OPERATING | GROUND | |
| | POSITIVE | SUPERVISORY | WEATHER | |
| | NEGATIVE | MANAGEMENT | | |
| | RETENTION | CONSIDERATIONS | | |
| | | QUALITY | | |
| | | QUANTITY | | |

Appendix B

Human Factor Analysis

Introduction

This appendix is designed with the intent of providing the trained accident investigator with additional skills and methodology in accident investigation techniques; specifically human factors analysis. This circular is supplemented with presentation slides that provide examples of Tactics, Techniques, and Procedures of hands-on application of these methods and theories. The board medical officer and, if available, the board aviation clinical psychologist, are valuable assets to spearhead the human factors analysis. It is highly recommended that at this point, the investigator is familiar with AR 385-40, Accident Reporting and Records, DA Pam 385-40, Army Accident Investigation and Reporting, and the U.S. Navy's Human Factors Analysis and Classification System (HFACS) (OPNAV 3750.6R (Appendix O)) (Shappell/Weigman).

Accident Investigation as Accident Prevention

Accidents are investigated to identify the immediate error(s) and system inadequacies (human, materiel, or environmental) which may have caused or contributed to the accident. When examining potential human errors, it is extremely important that the accident investigation into the cause of human errors does not stop at the operator level. It is well established that mishaps cannot be attributed to a single cause, or in most instances, to a single individual. Rather, accidents are the result of a combination of both latent (i.e., dormant) and active failures. Latent failures can include risk management decisions (or lack of) that set the operator up for failure. A key question to be answered concerning the accident being investigated is: Were informed risk decisions made at the appropriate level?

The ultimate goal of accident investigation is to provide information that will allow informed risk decisions at the appropriate level of command, to include senior Army leadership to include the Chief of Staff Army (CSA). It is at these higher command levels that changes can be affected throughout the Army's Doctrine, Training, Leader

Development, Organization, Materiel, and Soldier Systems (DTLOMS).

The on-site centralized accident investigation (CAI) is only one part of the Accident Prevention Process and is often focused at division level and below. CAI reports will be turned over to the USASC Systems Managers and other subject matter experts (SMEs) to be used in the second stage of the Accident Prevention Process, identification of Army wide hazards and controls as a part of the Army wide accident prevention process.

Concept

Department of the Army Pamphlet 385-40 describes the process for investigating and analyzing accidents and discusses the 3W approach to information collection, analysis and remedial measures. The intent of this circular is to provide accident investigators with a tool to perform a systematic and comprehensive investigation of human factors contributing to Army aviation and ground mishaps. The U.S. Navy's Human Factors Analysis and Classification System (HFACS) (OPNAV 3750.6R (Appendix O)), used in concert with the Army's 3W approach, will provide a framework for conducting the human factors analysis. The HFACS helps investigators identify systemic deficiencies at all levels of the Army's DTLOMS.

The 3W Approach

The procedures used throughout this pamphlet are designed to assist the investigator in answering the following three basic questions (Figure 1):

1. **What happened** (human, materiel and/or environmental cause factors): Identify errors, materiel failures/malfunctions and/or environmental factors, which caused or contributed to the accident. In the case of injuries, explain how they happened.
2. **Why it happened** (system inadequacy/root cause): Identify the system inadequacies (i.e., Support, Standards, Training, Leader and/or Individual) that caused or permitted errors/materiel failures/injuries to occur or environmental factors to contribute to the cause of the accident.
3. **What to do about it** (recommendations): Identify the recommended actions and the proponent activity or lowest level of command that is most responsible for correcting the system inadequacy. By incorporating the HFACS (see Para 5), the accident investigator can identify systemic deficiencies at all levels of the Army's Doctrine, Training, Leader Development, Operations, Materiel, and Soldier Systems. This information will

be critical in the later identification of Army wide hazards and controls back at USASC.

Human Error Approach to Accident Investigation

Concept

Human error continues to plague both military and civilian operations. Yet simply writing off mishaps as “human error” is a simplistic and nonproductive approach to mishap causation. After all, it is well established that mishaps cannot be attributed to a single cause, or in most instances, even a single individual. Rather, accidents are the end result of a series of latent and active failures and unsafe acts of the personnel involved that make up only a portion of these active failures. Your goal as an accident investigator is to determine the accident trajectory and identify the active and latent failures in order to understand why the mishap occurred and how it might be prevented from happening again in the future.

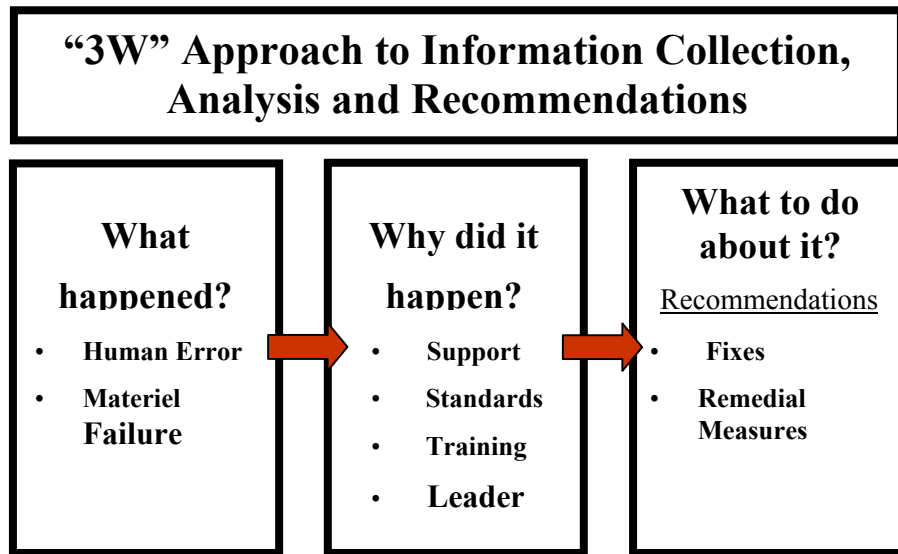


Figure 9

The Military Operation as a Productive System

The aviation industry can be conceptualized as a complex productive system (Reason, 1990, Figure 2). The Army is organized with a structured hierarchy. Within its organization are several sub-organizations comprised of individuals with unique training and equipment. The goal is for the sub-organizations to work together to accomplish a mission to deter outside aggression. Some of the operations are motor, rail, or air transportation. The end product in this case is military operations. As such, safe flight and ground

operations are directly linked to the productive activities of the total military workforce (Active Duty, National Guard and Reserve components, Department of the Army Civilians, and contract employees).

In the simplest sense, these activities involve the successful integration of the soldiers with the equipment. However, in order for effective and productive activities to occur, certain preconditions must exist. These preconditions include available and reliable equipment, a skilled and motivated workforce, and a safe occupational environment. The preconditions are established and maintained by first line supervisors in the operations, maintenance, and training departments within the organization. However, the specific production goals and decisions on how resources are to be managed are made by individuals at the battalion, brigade, division and, ultimately, DA levels. These leaders' decisions revolve around two distinct objectives - the goal of on-time, cost-effective operations, and operational safety. Ultimately these decisions are influenced by social, economical, and political inputs coming from outside the organization (The Commander-in-Chief, Congress, the Secretary of Defense, etc.) as well as feedback from leaders and soldiers within the organization (normally installation and lower organizations). The inputs to installation/division commanders come in the form of support and policy guidance from Major Army Commands and Department of the Army level and higher. These support decisions and policy guidance are often made by leaders removed from the operator, with little feedback on the impact to the mission. This often forces leaders at installation level and below to attempt to make due with limited or dwindling resources without the opportunity to request additional support. Finally, all of these activities take place within an operating environment that is governed by a regulatory body (Figure 2). This regulatory body imposes and enforces rules and sets boundaries on the types of decisions leaders can make (Reason 1990) Weigman & Shappell 1998). In the military community, operating environments include; the National Training Center the Joint Readiness Training Center with their specific rules of engagement and environment, the European and Middle East theaters of operations and their rules of engagement and harsh environments, and garrison operations with their local policies and unique environments. Soldiers cannot change these environments, but are forced to adapt to them during missions.

Active Failures

As described by Reason (1990), active failures are the actions or inactions of operators that are believed to cause the accident. Traditionally referred to as “human error”, they are the last “unsafe acts” committed by the personnel, often with immediate and tragic

consequences. For example, forgetting to clear a weapon before turning it in loaded to the unit armorer or forgetting to lower the landing gear before touch down will yield relatively immediate, and potentially grave, consequences.

Latent Failures

In contrast, latent failures are errors committed by individuals within the brigade, battalion, company or elsewhere in the supervisory chain of command that effect the tragic sequence of events characteristic of an accident. For example, it is not difficult to understand how tasking crews at the expense of quality crew rest, can lead to fatigue and ultimately errors (active failures) in the crew compartment of a tank or armored fighting vehicle. Viewed from this perspective then, the unsafe acts of the crew are the end result of a long chain of causes

Basic Components of a Productive System

Inputs (Political, Army, Economical, Social)

Operating Environment:

Garrison, CTC, OOTW Governed
by a regulatory body: Army
Regulations, DoDI, FAA, ICAO,
DOT, etc.

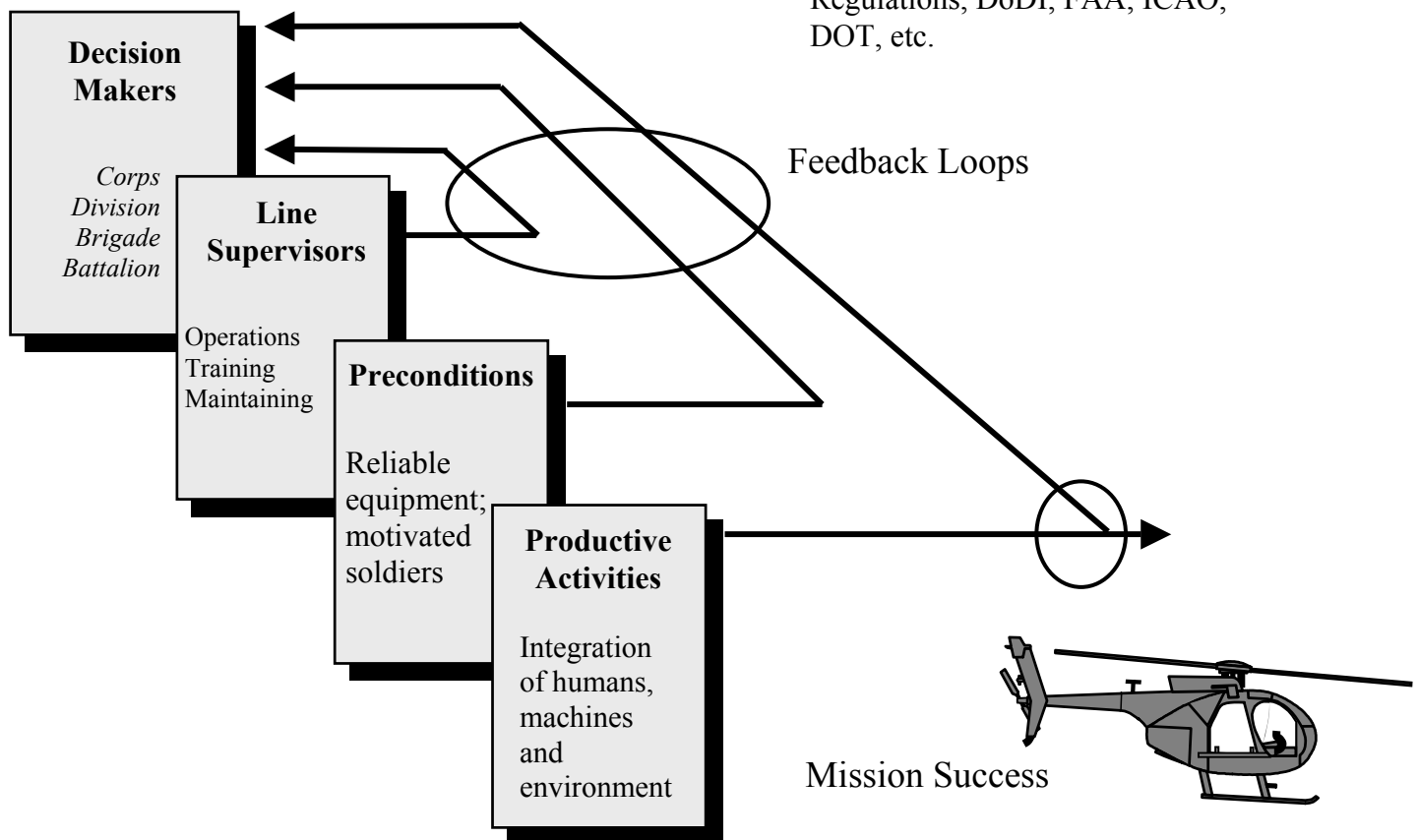


Figure 10 - Variation of adaptation of Reason (1990) by Wiegman and Shappell (1999)

whose roots originate in other parts (often the upper echelons) of the organization. The problem is that these latent failures may lie dormant or undetected for hours, days, weeks, or longer until one day they influence the unsuspecting crew.

Hazard Identification and Mitigation

The question for mishap investigators and analysts alike is how to identify and mitigate these active and latent failures. One approach is the “Domino Theory” (Bird, 1974). According to Bird, like dominoes

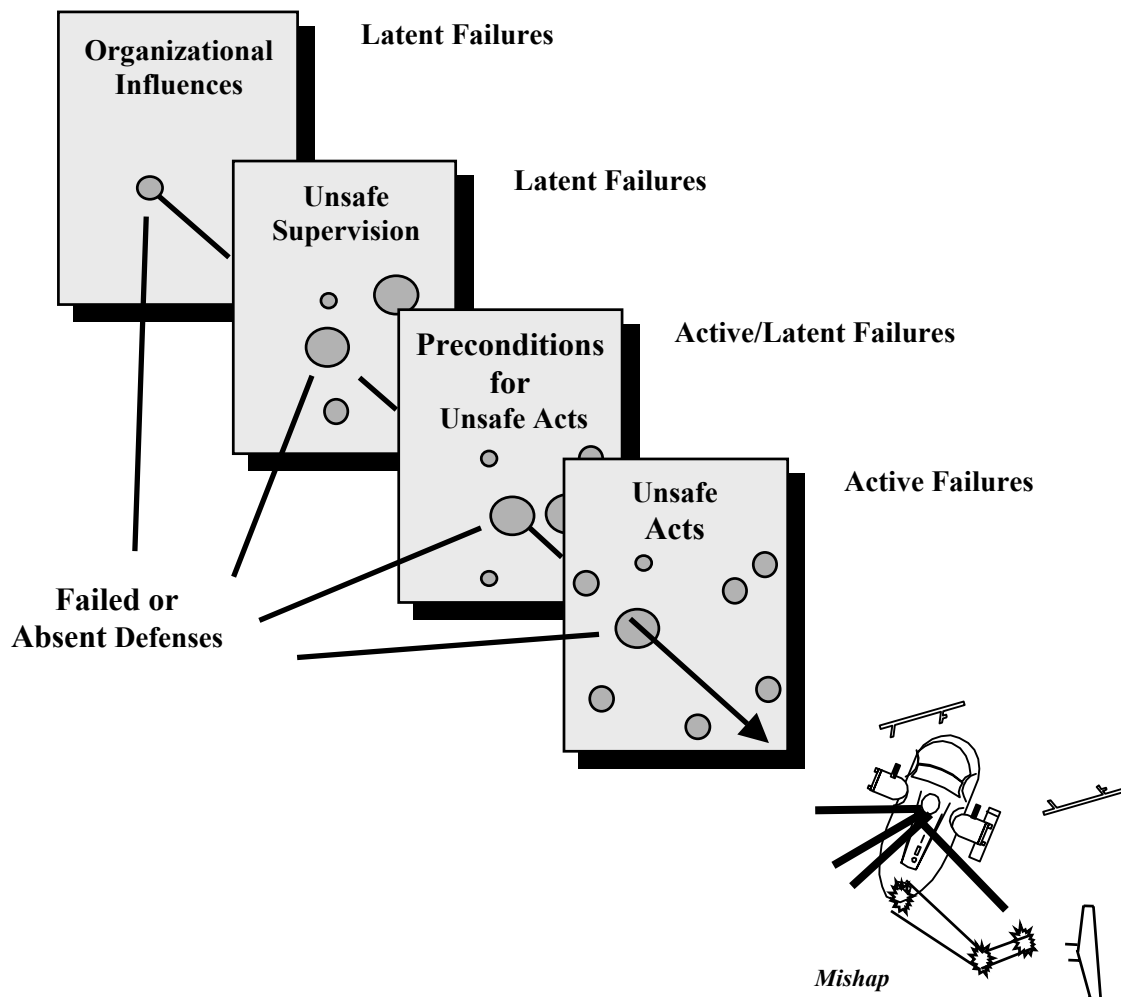


Figure 11 - The “Swiss Cheese” model of human error causation (adapted from Reason, 1990).

stacked in sequence, mishaps are the end result of a series of errors made throughout the chain of command. James Reason (1990) presented a “modernized” version of the domino theory that describes the levels at which active and latent failures may occur within complex military operations.

Working backwards from the mishap, the first level of Reason's "Swiss Cheese" model (see Figure 3) depicts those Unsafe Acts of Operators (aircrews, vehicle crews, maintainers, facility personnel, etc.) that ultimately lead to a mishap. Traditionally, this is where most mishap investigations have focused their examination of human error and consequently, where most causal factors have been uncovered. After all, it is typically the actions or inactions of the individual soldiers that can be directly linked to the mishap. Nevertheless, to stop the investigation at this level only tells part of the story.

What makes the "Swiss Cheese" model particularly useful in mishap investigation is that it assists investigators in identifying latent failures beyond simple unsafe acts, within the causal sequence of events involving the entire DTLOMS and command structure. For instance, latent failures such as fatigue and physical or mental limitations effect performance but can be overlooked by investigators with even the best of intentions. These particular latent failures are described within the context of the "Swiss Cheese" model as Preconditions for Unsafe Acts. Likewise, Unsafe Supervisory Practices can promote unsafe conditions within operators, which ultimately result in unsafe acts. If, for example, a platoon leader were to pair a below average vehicle commander with a new PFC, or pairing a weak pilot-in-command with a below average pilot, the result is often predictable and sometimes tragic. Regardless, whenever a mishap does occur, the crew naturally bears a great deal of the responsibility. However, in many instances, latent failures at the supervisory level are equally, if not more, responsible for the mishap. In a sense, crews may sometimes be set-up for failure.

Preconditions for unsafe acts include adverse mental states, adverse physiological states and physical/mental limitations of the operator. Decisions by management concerning personnel or how resources are to be allocated within the organization also contribute to these system failures. Cut backs on money spent on training is one example. Finally, the higher level of leadership may fail to inspect or monitor unit operations adequately, which further degrades the integrity of the system. All of these factors are referred to as latent conditions and can often lie dormant for a long time. They may not even be harmful if they occur in isolation. However, when all of these latent and active conditions interact, they create a "window of opportunity" for an accident to occur.

But the "Swiss Cheese" model doesn't stop at the supervisory level either, the organization itself can impact performance at all levels. For instance, in times of fiscal austerity funding is often cut, and as a result, training and flight time is curtailed. Supervisors are therefore left with tasking "non-proficient" crewmembers with complex missions. Not surprisingly, task saturation and the loss of situational

awareness will begin to appear and consequently performance during the mission will suffer. As such, causal factors at all levels must be addressed if any mishap investigation and prevention system is going to be effective.

So how do we identify the holes in the Swiss Cheese? Aren't they really too numerous to define? After all, every mishap is unique, so the holes will always be different for each mishap ... right? Well, it turns out that each mishap is not unique from its predecessors. In fact,

Operating Environment:
Garrison, CTC, OOTW, and
Combat

Inputs to the Organization: Cost
Cutting, Retention and Recruiting,
Multiple Tasking

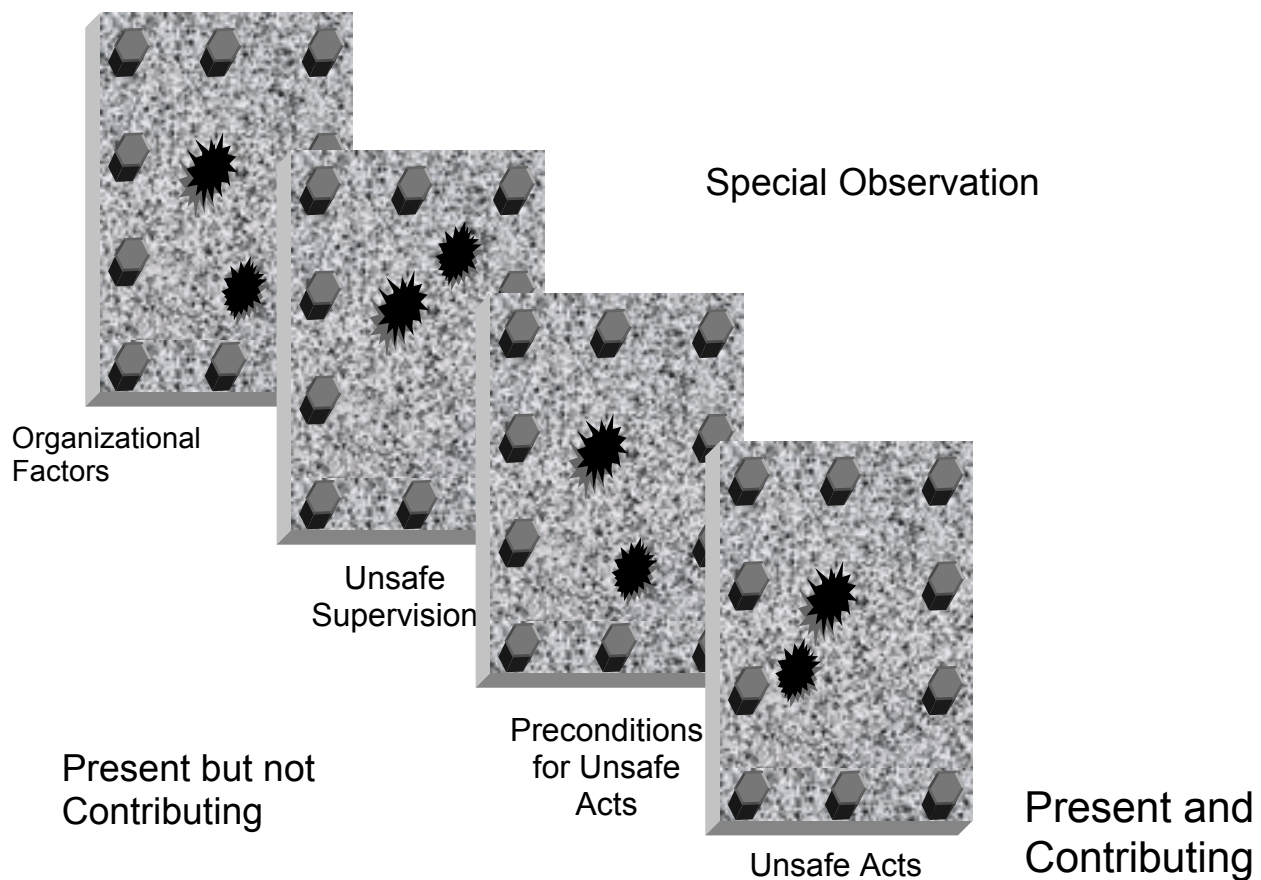


Figure 12 - Accident Trajectory

most mishaps have very similar causes. They are due to the same holes in the cheese, so to speak. Therefore, if you know what these system failures or "holes" are, you can better identify their roles in mishaps -- or better yet, detect their presence and correct them before a mishap occurs.

System Failures can be defined using the guidance in DA PAM 385-40. Failures that line up along the trajectory of the accident path are Present and Contributing. Failures of latent issues that may cause future accidents are Present but not Contributing. And anomalies identified as failures are Special Observations: that is, items that may not need to be brought to the attention of the Chief of Staff of the Army, but certainly to the attention of the immediate chain of command for corrective action (Figure 4). Each "slice of cheese", or in this case, each defensive barrier, represents a leader's opportunity to intervene and prevent an accident. The final barrier is the operator.

Human Factors Analysis and Classification System (HFACS) (Shappell/Wiegmann)

Drawing upon Reason's (1990) concept of latent and active failures, a framework was developed to identify the system failures called the Human Factors Analysis and Classification System (HFACS). This system applies to all Army operations and soldiers, regardless of branch, military occupational skill, or rank. HFACS describes four levels of failure: 1) Unsafe Acts, 2) Preconditions for Unsafe Acts, 3) Unsafe Supervision, and 4) Organizational Influences. Additionally, the taxonomy adds inputs to the organization and operating environment as a separate area to categorize influences on human behavior. A brief description of the major components and causal categories follows, beginning with the level most closely tied to the accident, unsafe acts.

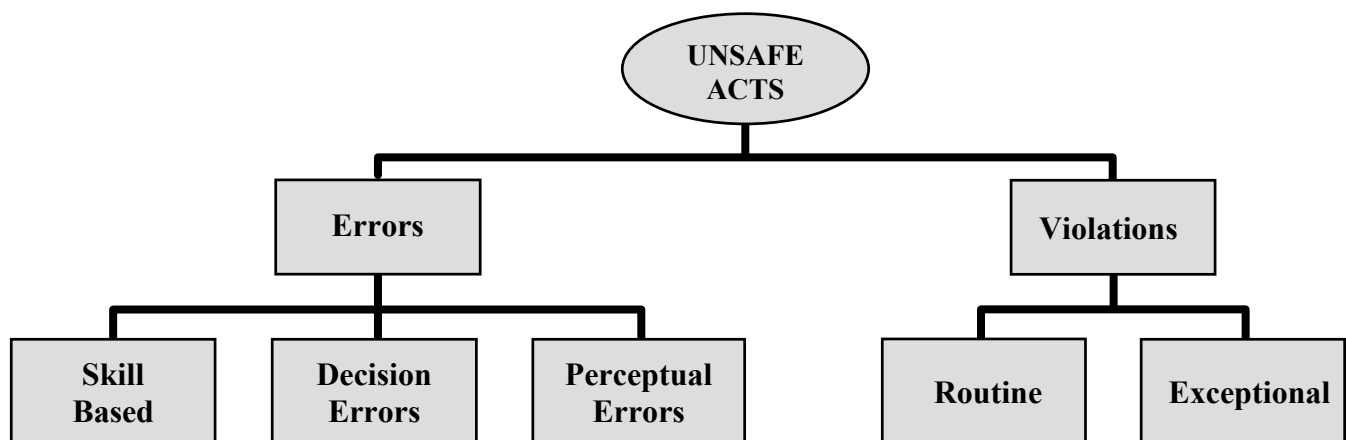


Figure 13 - Categories of unsafe acts committed by individuals

Unsafe Acts

The unsafe acts committed by an individual or crew generally takes fall into one of two categories, errors or violations. Errors are unintentional mistakes that may occur for any one of a number of reasons. Violations, on the other hand, represent the willful disregard for the rules and typically occur less frequently than simple errors. The unsafe acts an individual commits can be classified among three basic error types (skill-based, decision, and perceptual) and two forms of violations (routine and exceptional). Each will be described in turn (Figure 5).

Using this simple classification scheme, the investigator must first decide if an unsafe act (active failure) was committed by the operator (aircrew, maintainer, etc.). If so, the investigator must then decide if an error occurred or a known rule was willfully violated. Once this is done, the investigator can further define the causal factor as a specific type of error or violation as described below.

Basic Error Forms

1. **Skill-Based Errors.** Skill-based behavior is best described as those skills that occur without significant conscious thought. As a result, skill-based actions are particularly vulnerable to failures of attention and/or memory. In fact, attention failures have been linked to many skill-based errors such as the breakdown in visual scan patterns, task fixation, the inadvertent activation of controls, and the misordering of steps in a procedure, among others (Table 1). Consider, for example, the pilot so intent on putting munitions on target that he allows his scan to break down only to collide with the trees. Or the Bradley gunner, sweeping the range with his night vision system, fails to scan his compass, exceeds the range fan and shoots 2 AH-64Ds in a Forward Area Refuel Point. Closer to home, have you ever locked yourself out of your car or missed your exit because you were either distracted, in a hurry, or daydreaming? These are all examples of attention failures that occur during highly automated behavior.

In contrast to attention failures, memory failures often appear as omitted items in a checklist, place losing, or forgotten intentions. For example, most of us have experienced going to the refrigerator only to forget what we came for. Likewise, it's not difficult to imagine that in emergency situations, when under stress, steps in boldface emergency procedures or radio calls can be missed. Even when not particularly stressed however, soldiers have forgotten to take the protective caps off their Night Vision Goggles prior to driving their vehicles and aviators have forgotten to untie the main rotor blades prior to starting the engines.

Execution failures are errors that can happen even when no apparent attention or memory failure is present. The paratrooper, who is no longer proficient in his five points of performance because he waits until his currency is at its limits before going on his next jump. He most likely will have a weak exit or a poor parachute-landing fall (PLF). The individual flying skill/techniques of Army aviators differ from one pilot to next. We've all known individuals that fly smooth and effortless and those who make every mission an adventure. The bottom line is that skill-based errors are unintended behaviors. That is, individuals typically do not choose to limit their scan patterns, forget a boldface procedure or fly poorly - it just happens, unbeknownst to the individual. This often occurs from erosion of proficiency when units are only concerned with maintaining currency of task execution.

Often referred to as "honest mistakes", these unsafe acts represent the actions or inactions of individuals whose heart is in the right place, but they either did not have the appropriate knowledge available or just simply chose poorly. Regardless of the outcome, the individual made a conscious decision.

2. **Decision Errors.** Decision errors come in many forms, and occur for a variety of reasons. However, they typically represent poor decisions or the misinterpretation or misuse of relevant information. The bottom line is that the individual made a conscious choice and elected to do what was done – unfortunately, in the case of mishaps, it didn't work.
3. **Perceptual Errors.** Not surprisingly, when your perception of the world is different than reality, errors can, and often do, occur. Typically, perceptual errors occur when sensory input is degraded or 'unusual'; as is the case when visual illusions or spatial disorientation occurs (Table 1). Visual illusions occur when the brain tries to 'fill in the gaps' with what it feels belongs in a visually impoverished environment, like that seen at night or in the weather. Likewise, spatial disorientation occurs when the vestibular system cannot resolve your orientation in space and therefore makes a "best guess" -- typically when visual (horizon) cues are absent at night or during inclement weather. Tragically, these sorts of errors often lead to midair collisions, controlled flight into terrain, or driving into obstacles, such as driving a Bradley vehicle into a wadi in the darkness or a LMTV head-on into the barrel of a parked M1-A1 tank, etc. In either event, the individual is left to make a decision based on faulty information leading to an error, and often a mishap. Likewise, it is often quite difficult to judge precise distance and closure between aircraft and the ground when relative cues like clouds or terrain features are

absent. Consequently, aircrews are left to make control inputs based upon misperceived or absent information.

Violations involve the willful disregard for authority that cannot be tolerated.

1. There are two distinct types of violations, routine infractions and exceptional infractions (Table 1). The first, infractions, tend to be routine/habitual by nature constituting a part of the individual's behavioral repertoire. For example, the person who drives consistently 5-10 mph faster than allowed by law tends to do this as a matter of routine. While certainly against the law, many folks do it. Furthermore, if you go 64 in a 55 mph zone without being penalized, you always drive 64 in a 55 mph zone. That is, you 'routinely' violate the law. Commonly referred to as "bending" the rules, these violations are often tolerated and, in effect, sanctioned by the supervisory authority (that is, you're not likely to get a ticket going 64 in a 55). Therefore, if a routine violation/infraction is identified, one must look further up the supervisory chain to identify those that are condoning those violations.
2. **Exceptional.** Unlike routine violations, exceptional violations appear as isolated departures from authority, not necessarily indicative of an individual's typical behavior pattern or condoned by management. For example, an isolated instance of driving 105 mph in a 55 mph zone, the tanker, exceeding speed limits to "catch some air" or an aviator taking his wife for a one-time joyride. It is important to note that exceptional violations are not considered 'exceptional' because of their flagrant nature. Rather, they are considered exceptional because they are neither typical of the individual nor condoned by authority (examples in Table 1).

| Table 1. Selected examples of Unsafe Acts of Operators (Note: this is not a complete listing) | |
|--|--|
| Unsafe Acts of Operators | |
| <p>Errors</p> <p><u>Skill-based Errors</u></p> <ul style="list-style-type: none"> Breakdown in Visual Scan Delayed Response Failed to Prioritize Attention Failed to Recognize Extremis Improper Instrument Cross-Check Inadvertent use of Flight Controls Omitted Step in Procedure Omitted Checklist Item Poor Technique <p><u>Decision Errors</u></p> <ul style="list-style-type: none"> Improper Takeoff Improper Approach/Landing Improper Procedure Misdiagnosed Emergency Wrong Response to Emergency Exceeded Ability Inappropriate Maneuver Poor Decision <p><u>Perceptual Errors</u></p> <ul style="list-style-type: none"> Misjudged Distance/Altitude/Airspeed or groundspeed Spatial Disorientation Visual Illusion | <p>Violations</p> <p><u>Routine (Infractions)</u></p> <ul style="list-style-type: none"> Failed to Adhere to Brief Violation of Regulations/SOP <ul style="list-style-type: none"> - Failed to use Radar Altimeter or laser rangefinder - Flew an unauthorized approach - Failed to execute appropriate rendezvous - Violated training rules - Failed to adhere to departure procedures - Flew overaggressive maneuver - Failed to properly prepare for mission - Failed to comply with NVG SOP <p><u>Exceptional</u></p> <ul style="list-style-type: none"> Briefed Unauthorized Mission Not Current/Qualified for Mission Intentionally Exceeded the Limits of the Aircraft Violation of Regulations/SOP <ul style="list-style-type: none"> - Continued low-altitude flight in VMC - Failed to ensure compliance with rules - Continued mission that violated procedures - Not current for mission - Downwind takeoff - Exceeded angle of bank limitations - Exceeded gun-cycle duty limits - Briefed and flew unauthorized maneuver |

Preconditions for Unsafe Acts

Arguably the unsafe acts of operators can be directly linked to nearly 80 percent of all mishaps. However, focusing only on identifying unsafe acts is like focusing on a fever without understanding the underlying disease causing it. Investigators must dig deeper into why the unsafe act occurred. As a first step, we describe two major subdivisions of preconditions for unsafe acts, Substandard Conditions

of Operators (i.e., Adverse Mental States, Adverse Physiological States, and Physical/Mental Limitations) and those Substandard Practices they commit (Figure 6). Each is described briefly below.

Substandard Conditions of Operators

1. **Adverse Mental States.** The category of adverse mental states was created to account for those mental conditions that adversely affect performance (Table 2). Principle among these is task saturation, undue sense of urgency, and *mental* fatigue due to sleep loss or other stressors. Also included in this category are personality traits and detrimental attitudes such as overconfidence, complacency, and misplaced motivation. An example of misplaced motivation would be the soldier so focused on completing the mission he uses a red-X'ed vehicle or fails to get it dispatched. He tries to do the job but fails to think about what he is doing. For example, if an individual is mentally tired for whatever reason, the likelihood that an error will occur increases. Likewise, overconfidence, arrogance, and other such attitudes will influence the likelihood that a violation is committed.

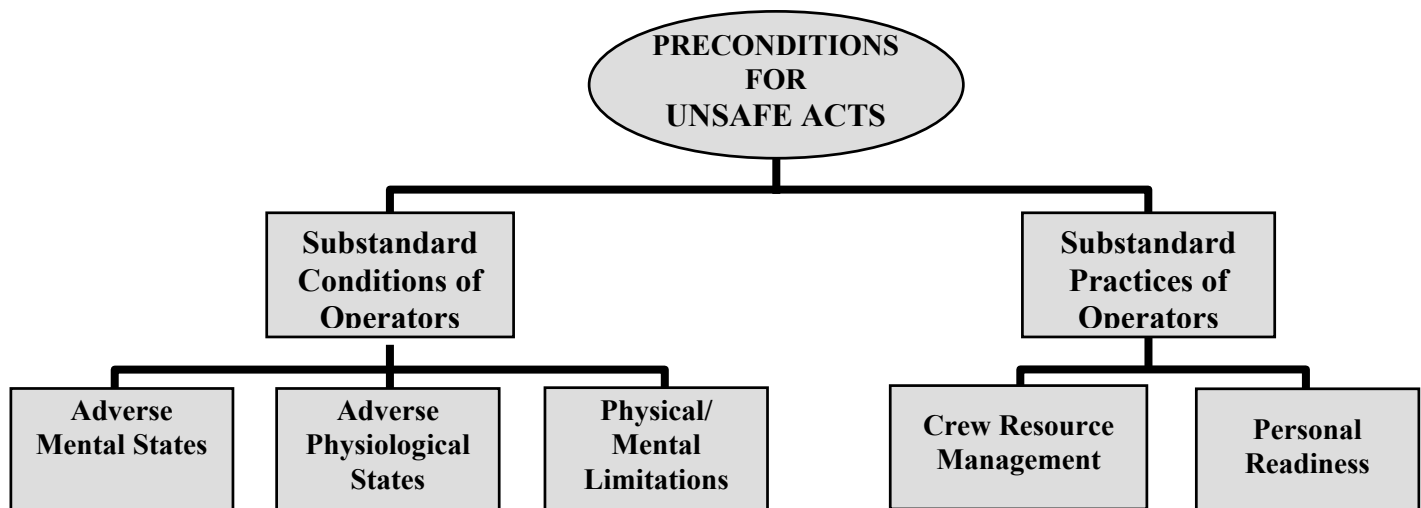


Figure 14 - Categories of preconditions of unsafe acts.

2. **Adverse Physiological States.** The second category, adverse physiological states, refers to those medical or physiological conditions that preclude safe operations (Table 2). Particularly important to aviation are conditions such as spatial disorientation, visual illusions, physical fatigue, and the myriad of pharmacological and medical abnormalities known to affect performance. If, for example, an individual were suffering from an inner ear infection, the likelihood of spatial disorientation occurring when entering instrument meteorological conditions

(IMC) or conducting night free fall parachute training goes up markedly. Consequently, the medical condition must be addressed within the causal chain of events.

3. **Physical/Mental Limitations.** The third, and final, category, Physical/Mental Limitations, refers to those instances when the mission requirements exceed the capabilities of the individual at the controls. Physical/Mental Limitations can take many forms (Table 2). For example, at night our visual systems are limited by the capability of the photosensors in our eyes and hence vision is severely degraded. Yet, like driving a car, we do not necessarily slow down or take additional precautions. In aviation, this often results in not seeing other aircraft, obstacles, or power lines due to the size or contrast of the object in the visual field. Similarly, there are occasions when the time required completing a task or maneuver exceeds human capacity, for instance driving a vehicle at 30 miles per hour (60 feet per second) with only 40 feet of visibility. The time it takes to recognize and react to a hazard could take up to a second and a half. By then a collision will have occurred. It is well documented that if individuals are required to respond quickly (i.e., less time is available to consider all the possibilities or choices thoroughly), the probability of making an error goes up markedly.

There are two additional instances of physical/mental limitations that need to be addressed, albeit they are often overlooked in most mishap investigations. They involve individuals who simply are not compatible with certain Military Occupational Specialties (MOS). For example, some individuals simply don't have the physical strength to operate in certain MOS environments or, for anthropometric reasons, simply have difficulty reaching the controls in a ground vehicle or aircraft. Likewise, not everyone has the mental ability or aptitude for flying aircraft or operating complex weapons systems. Just as not all of us can be concert pianists or NFL linebackers, we can't all fly aircraft or drive tanks.

Substandard Practices of Operators

1. **Crew Resource Mismanagement.** To account for occurrences of poor coordination among aircrew and other personnel associated with the safe conduct of the flight, the category of crew resource mismanagement was created (Table 2). This includes coordination both within and between aircraft, ATC, and maintenance control, as well as facility and other support personnel. Anywhere communication between individuals is required, either in the crew compartment of an M1-A1 tank or in the cockpit of an AH-64 Apache helicopter during Table 8 gunnery; the potential for miscommunication or poor resource management exists. With

respect to coordination within an aircrew, coordination is not restricted to the flight itself. It also includes coordination before and after the flight with the brief and debrief of the aircrew.

The types of Crew Resource Mismanagement are:

- a. **Supervisory** – individual directly responsible for conduct of the operation fails to coordinate and / or supervise operations appropriately (e.g., failed to communicate / coordinate / conduct adequate brief) [NOTE: reserved for aircrew who function during the flight as aircraft commanders, flight leaders, section leaders, etc.; also, differs from “unsafe supervision” since those generally involve individuals in positions of higher authority detached from direct conduct of operations]
- b. **Crew** – individual crewmember inadequately or inappropriately accomplishes assigned crew coordination duties (e.g., failure to scan due to being inside cockpit, failure to assist other pilot in accomplishment of task which requires assistance, failure to notify other pilot of developments which could hinder mission accomplishment, etc).
- c. **Rank Gradient** – when the ranking individual fails to correct a procedure violation or other deviation from safe flight (e.g., failure by a company / battalion commander to correct an IP / PIC who is flying faster / lower than SOP / mission allows / requires or outside parameters set during the mission brief).
- d. **Non-supervisory tolerance of unsafe acts** – when aircrew members and non-aircrew members, not in the accident pilot's chain of command, know about high risk/unsafe actions during flight by that pilot but do not take appropriate action to report/correct the situation. E.g., fellow crewmembers are aware of “hot-dogging,” unauthorized aerial aerobatics but fail to report these incidents to the appropriate authority, crewchiefs who “white knuckle during flight” without mention due to a fear of offending the pilot.
- e. **Personal Readiness.** In aviation, or for that matter in any occupational setting, individuals are expected to show up for work ready to perform at optimal levels. For Army aviation, personal readiness failures occur when individuals do not prepare physically or mentally for flight. For instance, violations of crew rest requirements, "bottle-to-brief" rules, and self-medicating will affect performance in the aircraft. It's not hard to imagine that when you violate crew rest requirements, you run the risk of mental fatigue and other adverse mental states. Note that violations that effect personal readiness are

not considered “unsafe act, violation” since they typically do not happen in the cockpit, nor are they active failures with direct and immediate consequences). Not all personal readiness failures occur as a result of a violation of rules. For example, running 10 miles before piloting an aircraft may not be against any existing regulations, yet it may impair the physical and mental capabilities of the individual enough to degrade performance and elicit unsafe acts. Likewise, the traditional “candy bar and coke” lunch of the aviator may not be sufficient to sustain performance in the rigorous environment of military aviation.

Unsafe Supervision

1. Often the mishap causal chain of events involve the supervisory chain of command. Deficiencies in supervision and line management directly influence the behavior of operators. There are two major categories of unsafe supervision, Unforeseen and Known. Unforeseen Conditions includes two subcategories: Unrecognized Hazardous Operations and Inadequate Documentation or Procedures. Known Unsafe Supervision includes four subcategories: Inadequate Supervision, Planned Inappropriate Operations, Failed to Correct a Known Problem, and Supervisory Violations (Figure 7). Each is described briefly below.

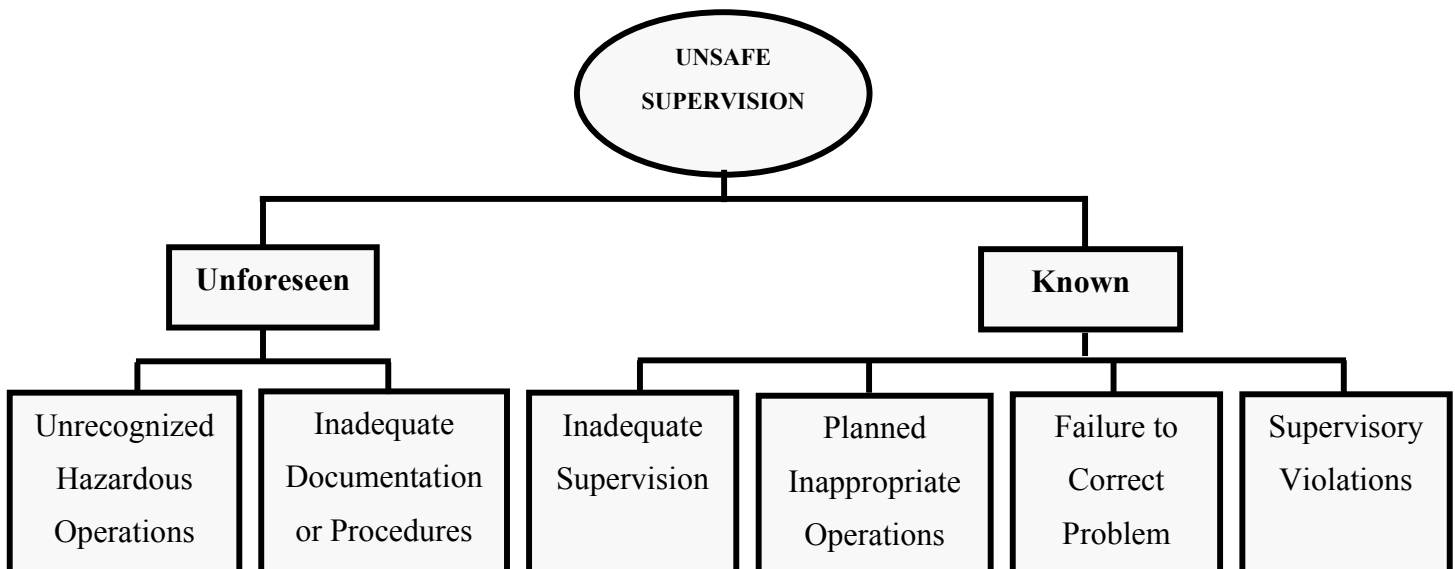


Figure 15 - Categories of unsafe supervision

- a. **Unforeseen Conditions:** In a broad sense, unforeseen unsafe supervision involve those unsafe management and /or supervisory practices that go unnoticed, and are not the result of negligence or adverse behavior. Unsafe supervision is typically viewed from the perspective of the leader from platoon to brigade levels. A 2LT, fresh out of OBC with no other military experience just doesn't know what he doesn't know. Leaders who put such individuals into leadership positions without mentoring or supervision are setting them up to make risky decisions.
 - b. **Known Conditions:** This refers to the unsafe management of operations, which was a direct result of supervisory action or inaction. However, the term "known" in this case does not imply that the supervisor intentionally did something wrong, rather it refers to those instances in which the supervisor erred in managing a known aspect of the operation.
2. **Inadequate Supervision.** The role of any supervisor is to provide the opportunity to succeed. To do this the supervisor, no matter what level of command, must provide guidance, training opportunities, leadership, motivation, and mentoring. Unfortunately, does not always occur. It's not difficult to conceive of a situation where adequate crew resource management training was either not provided, or the opportunity to attend the training was not afforded, to a particular aircrew member. Conceivably, the pilot's aircrew coordination skills would be compromised and, if put into an adverse situation (an emergency for instance), he would be at risk for errors and a potential mishap. Therefore, the category Inadequate Supervision was created to account for those times when supervision proves inappropriate, improper, or may not occur at all (Table 3).
3. **Planned Inappropriate Operations.** Occasionally, the operational tempo and/or schedule is planned such that individuals are put at unacceptable risk and crew rest is jeopardized, and ultimately performance is adversely affected. Such operations, though arguably unavoidable during emergency situations, are unacceptable during normal operations. The category, Planned Inappropriate Operations, accounts for these supervisory failures (Table 3). Included in this category are issues of crew pairing and improper manning. It's not surprising that, when two individuals with marginal skills are paired together, problems can, and often do, arise.
4. **Failure to Correct a Known Problem.** This third category of known unsafe supervision refers to those instances when deficiencies among individuals, equipment, training or other

related safety areas are “known” to the supervisor, yet are allowed to continue uncorrected (Table 3). For example, the failure to consistently correct or discipline inappropriate behavior certainly fosters an unsafe atmosphere, but is not considered a violation if no specific rules or regulations were broken.

| Table 3. Selected examples of Unsafe Supervision (Note: this is not a complete listing) | |
|---|--|
| <u>Inadequate Supervision</u> Failed to Provide Guidance Failed to Provide Operational Doctrine Failed to Provide Oversight Failed to Provide Training Failed to Track Qualifications Failed to Track Performance <u>Planned Inappropriate Operations</u> Failed to Provide Correct Data Failed to Provide Adequate Brief Time Improper Manning Mission Not IAW with Regs/SOP Permitted Unnecessary Hazard Provided Inadequate Opportunity for Crew Rest | <u>Failed to Correct a Known Problem</u> Failed to Correct Document in Error Failed to Identify an At-Risk Aviator/Driver Failed to Initiate Corrective Action Failed to Report Unsafe Tendencies <u>Supervisory Violations</u> Authorized Unnecessary Hazard Failed to Enforce Regs/SOP Failed to Enforce Standards Authorized Unqualified Crew for Flight |

5. **Supervisory Violations.** Supervisory violations, on the other hand, are reserved for those instances when existing rules and regulations are willfully disregarded by supervisors when managing assets (Table 3). For instance, permitting an individual to operate an aircraft without current qualifications or a vehicle without a license are flagrant violations that invariably set the stage for the tragic sequence of events that predictably follow.

Organizational Influences

Decisions of higher levels of command (e.g. corps, MACOM, DA) directly effect supervisory practices, as well as the conditions and actions of operators. System failures at this organizational level generally revolve around issues related to resource management, organizational climate, and operational processes (Figure 8).

1. **Resource Management.** This category refers to the management, allocation, and maintenance of organizational resources such as personnel, finance, and equipment/facilities. Personnel issues that directly influence safety include personnel selection (including background checks), training, and staffing/manning. Financial



Figure 16 - Categories of organizational influences

issues such as excessive cost cutting, a lack of funding for proper and safe equipment and resources also may have adverse effects on operator performance and safety. Finally, issues related to equipment design, including the purchasing of unsuitable equipment, inadequate design of workspaces, and failures to correct known design flaws may also contribute to mishaps. Management should ensure that human factors engineering principles are trained and utilized and that specifications for equipment and workspace design are identified and met.

2. **Organizational Climate.** Organizational climate refers to a broad class of organizational variables that influence worker performance (Glick, 1985). In general it is the prevailing atmosphere or environment within the organization. Within HFACS, climate is broken down into three categories- structure, policies, and culture. The term "structure" refers to the formal component of the organization (Mintzberg, 1993). The "form and shape" of an organization are reflected in the chain-of-command, delegation of authority and responsibility, communication channels, and formal accountability for actions. Organizations with maladaptive structures (i.e., do not optimally match to their operational environment or are unwilling to change), will be more prone to accidents ..." (Muchinsky, 1997). "Policies" refer to a course or method of action that guides present and future decisions. Policies may involve hiring and firing, promotion, retention, raises, sick leave, drugs and alcohol, overtime, accident investigations, use of safety equipment, etc.

When policies are ill defined, adversarial, or conflicting, safety may be reduced. Finally, "culture" refers to unspoken or unofficial rules, values, attitudes, beliefs, and customs of an organization. "The way things really get done around here."

| Table 4. Selected examples of Organizational Influences (Note: this is not a complete listing) | |
|---|--|
| <u>Resource/Acquisition Management</u> Human Resources Selection Staffing/Manning Training Monetary/Budget Resources Excessive cost cutting Lack of funding Equipment/Facility Resources Poor design Purchasing of unsuitable equipment <u>Organizational Climate</u> Structure Chain-of-command Delegation of authority Communication Formal accountability for actions Policies Hiring and firing Promotion Drugs and alcohol Culture Norms and rules Values and beliefs Organizational justice Citizen behavior | <u>Organizational Process</u> Operations Operational tempo/Pace Time pressure Production quotas Incentives Measurement/Appraisal Schedules Deficient planning Procedures Standards Clearly defined objectives Documentation Instructions Oversight Risk Management Safety Programs |

- Organizational Process.** This category refers to the formal process by which things get done in the organization. It is subdivided into three broad categories - operations, procedures, and oversight. The term "operations" refers to the characteristics or conditions of work that have been established by management. These characteristics include operational tempo, time pressures, production quotas, incentive systems, schedules, etc. When set up inappropriately, these working conditions can be detrimental to safety. "Procedures" are the official or formal guidelines as to how the job is to be done. Examples include performance standards, objectives, documentation, instructions about procedures, etc. All of these, if inadequate, can negatively impact employee supervision, performance, and safety. Finally, "oversight" refers to management's monitoring and checking of resources, climate, and processes to ensure a safe and productive work environment. This

includes the command involvement with risk management, and the command's establishment and use of safety programs.

4. **Inputs to the Organization and Operating Environment** To recap earlier discussion, in order for effective and productive activities to occur, certain preconditions need to exist. The preconditions include available and reliable equipment, a skilled and motivated workforce, and a safe occupational environment. These preconditions are established and maintained by line managers in the operations, maintenance, and training departments within the organization. However, the specific production goals and decisions on how resources are to be managed are made by individuals at the brigade, division and, ultimately, DA levels. These leaders' decisions revolve around two distinct objectives - the goal of on-time, cost-effective operations, and operational safety. Ultimately these decisions are influenced by social, economical, and political inputs coming from outside the organization, as well as feedback from leaders and soldiers within the organization (normally installation and lower organizations). The inputs to installation/division commanders come in the form of support and policy guidance from Major Army Commands and Department of the Army level and higher. These support decisions and policy guidance are often made by leaders removed from the operator, with little feedback on the impact to the mission. This often forces leaders at installation level and below to "play the cards they were dealt" without the opportunity to "draw or fold". Finally, all of these activities take place within an operating environment that is governed by a regulatory body (Figure 3). This regulatory body imposes and enforces rules and sets boundaries on the types of decisions leaders can make (Reason 1990) Weigman & Shappell 1998). In the military community, operating environments include; the National Training Center the Joint Readiness Training Center with their specific rules of engagement and environment, the European and Middle East theaters of operations and their rules of engagement and harsh environments, and garrison operations with their local policies and unique environments. Soldiers cannot change these environments, but are forced to adapt to them during missions.

Ground and Maintenance Extension of HFACS

Human Factors.

In large part, HFACS can be used to examine maintenance human factors in much the same way, as one would investigate aircrew or ground crew operations. For example, a supervisor who fails to correct a technician that routinely bends the rules while performing

maintenance would be considered an Unsafe Supervisory Condition, *failure to correct a known problem*. Likewise, a technician who has a marital problem and cannot focus on a maintenance action has fallen prey to a Precondition for Unsafe Acts, *adverse mental state*. Ultimately, these failures could lead to unsafe acts of maintainers such as inadvertently omitting a step in a maintenance procedure (*skill-based error*) or a technician who willfully violates the rules (*violation*). Imagine the errors that can occur in the Tactical Operations Center after day 4 of a mission and you how they can be categorized using the HFACS taxonomy.

Working Conditions

In contrast to aircrew error, the working conditions in which a maintainer operates often plays a larger role in errors observed during maintenance actions. Consequently, latent environmental, equipment and workspace conditions can have profound effects on performance and must be documented.

Environmental Working Conditions.

Examples of environmental conditions that might contribute to an unsafe act is a maintainer who is working at night on the flight line and does not see the tool he/she left behind in the engine compartment. In this case, lighting clearly had an impact on the error and would therefore be considered an *environmental working condition*. Similarly, a maintainer who fails to properly attach the chains to an aircraft in a driving rain has likely been affected by weather (weather, lighting, and other environmental hazards should be considered when examining maintenance errors).

Equipment Working Conditions.

Equipment working conditions refers to the use of damaged, dated tools or the unavailability of the right tools or manuals for the job. For instance, a maintainer who uses a defective test set may miss problems with the aircraft when troubleshooting. Likewise, manuals may be out of date or the medium (CD-ROM) is either unavailable or difficult to work with. As a result, the maintainer may attempt to work from memory, or worse, invent procedures or short cuts that “seem” to get the job done. In either case, it is incumbent upon the investigator to identify and document these unsafe working conditions where they exist.

Workspace Working Conditions.

The final category of maintenance working conditions involves working in confined, obstructed, or inaccessible workspaces. For

example, there are times when conducting maintenance in hangar spaces, that maintenance stands cannot be positioned properly because of obstructions or confined workspace. Consequently, the maintainer is forced to “make do” putting himself at risk and increasing the potential of maintenance error. In a similar manner, maintainers doing corrosion inspections are often forced to inspect areas beyond their reach making the inspection process itself problematic and prone to short cuts and errors.

While Unsafe Working Conditions such as the ones outlined above primarily involve the maintainer, similar issues may be causal (albeit less frequently) with other aviation personnel such as those working the flight line, ATC, and aircrew and those involved in ground operations.

Accident Investigation Process

Investigation Plan

The successful accomplishment of an accident investigation will depend upon how well it is planned, organized, and conducted. The investigating officer/board president is responsible for organizing and directing the efforts toward a thorough and comprehensive investigation. The board will be established according to AR 385-40, paragraph 4-2. The investigation plan is a systematic procedure that will ensure continuity of effort from the preliminary examination of the accident site to the submission of the final report. The plan is divided into four phases:

1. Organization and preliminary examination
2. Data collection
3. Analysis of the data
4. Completion of the technical report.

Phase 1

Organization and preliminary examination. This phase provides the opportunity for the board president to organize the board for the investigation. This should be accomplished in a board meeting before departing for the accident scene. This meeting should ensure that every board member understands the areas of the investigation for which they are responsible, the initial tasks to be accomplished and the data elements to be collected to complete the report. The board should also be briefed by the unit/installation safety director/officer on the status of preliminary actions. The board's initial concern should be to secure the accident site. If it is too dark to conduct the preliminary

examination, the board should return at daylight to preclude disturbing evidence. Once the board arrives at the accident site, members of the board should make a preliminary examination of the accident site to get a "mental picture" of the physical layout as an early step in their individual tasks. However, caution must be used to ensure the site, to include ground scars/marks, is not disturbed. This orientation will usually require less than 30 minutes.

Phase 2

Data collection. Organization of the data collected is the key for an organized analysis that is fully supported by factual information. All board members will frequently meet as a group to discuss mutual progress, trade information, reduce redundancy, resolve conflicting information, and redirect investigative efforts as appropriate. As these meetings grow in number, it will not be unusual to discover that data initially considered insignificant may prove to be important and vice versa. Also, preliminary data that may appear to be a cause of the accident may prove to be an effect or result, and so forth. Therefore, board members should keep an open mind and stay flexible, receptive, and discerning throughout the investigation. Board members should not entertain preconceived ideas as to the cause of an accident. Divide data collection into the following areas:

1. **Human factors** (DA PAM 385-40, Para 2-4). The board flight surgeon and the board aviation clinical psychologist (if available) will head the team. Human factors are primarily concerned with gathering data necessary to evaluate the job performance of all personnel who influenced the operation that resulted in the accident. The sources of this information may include, but are not limited to: personnel involved, witnesses, supervisors, peers, and personnel from operations, training and maintenance; individual records, to include training, qualification, personnel, and/or medical records; psychological autopsy, data for the evaluation of the command influence, such as unit policy for risk management, mission briefings, crew rest/sleep (both long and short term), utilization of personnel, and driver selection/training; data for evaluation of the structure/system/equipment crashworthiness, personnel restraint systems, and personal protective clothing and equipment as related to injury causation or prevention; and data for the evaluation and reporting of problems encountered in egress, survival, and rescue. Environmental data must also be collected for evaluation of its impact or influence on the performance of the involved individuals.
2. **Materiel factors** (DA PAM 385-40, Para 2-5). The materiel factors investigation must interface with the human factors investigation to search for errors that may have resulted in materiel

failure. Materiel factors are primarily concerned with gathering data necessary to evaluate the performance of the vehicle, buildings, and ground support equipment, land/or other support materiel. The board maintenance officer will head the team. Some sources for this information are the equipment historical, modification and inspection records, fluid analysis, teardown analysis, wreckage distribution, photographs and the failed part. Also, equipment project managers (PM), manufacturer, equipment operators, and maintenance personnel are excellent sources of materiel data. Also, data concerning how environmental conditions have affected vehicle/system/equipment performance must be acquired.

3. **Environmental factors** (DA PAM 385-40, Para 2-6).

Environmental factors are those environmental elements or conditions such as noise, illumination, space and weather conditions (for example, precipitation, temperature, humidity, pressure, wind, and lightning, and so forth) having an adverse affect on the performance of the individual or equipment so that an accident results or could result. Environmental factors can be divided into those which could not have been avoided ("act of God"), in which case environment is the causal factor, and those for which precautions could have been implemented to reduce or eliminate its adverse effects on personnel and/or equipment. In the latter case, environment is considered to be contributory but not causal. Collection of environmental evidence is simultaneous and inclusive with the human and materiel factors evidence collection.

Phase 3

Analysis of data. The scope of the analysis will not necessarily be limited to the field investigation of the accident and may extend beyond the tenure of the investigator/board. The board flight surgeon and, if available, the board aviation clinical psychologist, are valuable assets to spearhead the human factors analysis. The analysis function is an ongoing process throughout the data collection phase.

Conclusions derived from the analysis will be the basis for developing findings and recommendations. The analysis should be thorough and should focus on determining why the accident occurred. This should drive the analytical effort throughout the investigation so that findings and recommendations can be developed that have the best potential for preventing similar accidents. Paragraph 2-8 of DA PAM 385-40 addresses accident data analysis in greater detail. Tactics, techniques and procedures for conducting Analysis and Deliberation are discussed below.

Phase 4

Completing the technical report. In this phase, the board must ensure that all relevant evidence gathered is carefully recorded. It is not unusual for some of the evidence to be contradictory. Contradictory evidence will be discussed and resolved to the extent possible in the analysis. The contents of the report will subsequently be reviewed and analyzed by the USASC and other agencies responsible for the management of resources and identification of Army wide hazards and controls.

Analysis and Deliberation Tactics, Techniques and Procedures

1. Once the board completes the Data Collection Phase, they transition into the Analysis Phase of the data. The board president and recorder are the key personnel to facilitate and record the analysis and deliberations. It is important that the board members review witness testimony, unit and Army level documents pertinent to the operation, as well as equipment, training, and medical records and note any anomalies. The board members should review their notes as well as section 2-8 of DA Pam 385-40 prior to the analysis and deliberation session.
2. The entire board should meet at a central location to collectively review the data and finalize the analysis. The facility used for the meetings should be secure and free from distractions and allow for privacy. The board president will chair the meetings and guide the proceedings. The board recorder will prepare the necessary charts to record the anomalies discovered during the data collection. Charts will be prepared for the timeline, human factors, environmental factors, materiel factors, and life support/protective clothing and equipment.
3. The recorder, with the assistance of the board, uses butcher paper or a dry erase board to establish the basic timeline of the accident. This timeline may actually be several timelines: a micro time line of hours, minutes, and seconds during the accident sequence (in which the active failures are most often found), and a macro timeline that covers the days, weeks, or months preceding the accident (in which the latent failures are most likely found).
4. Next, the board lists anomalies discovered during the course of the investigation. The goal is to list all of the abnormalities uncovered during the data collection phase, regardless of perceived individual importance. The recorder uses the butcher paper to list anomalies from Materiel, Environmental, and Human Factors. The board recorder prepares the outlines on the sheets of butcher paper prior to the board arriving for analysis. It is important that the president

review with the board what constitutes materiel and environmental factors. The Human Factors anomalies are organized in accordance with the combined outline of the 3-W and the Human Factors Accident Classification System (Figures 9-14). As each new level of human factors is discussed, the definitions are reviewed to aid in the systematic analysis and organization of anomalies. This will aid in asking the question of "why" and trace the accident trajectory backward through the local chain of command into the Army operating systems (i.e., DTLOMS).

5. Next, the anomalies are reviewed to determine if they were present in the accident timeline trajectory. Active failures are readily apparent, but latent failures require more analysis. As the factors that were present in the accident timeline trajectory are isolated, they are placed into the written timeline to develop an event chart. They are then analyzed to determine if they are:
 - a. Factor(s) that definitely contributed to the accident (present and contributing).
 - b. Factor(s) suspected to have contributed to the accident (suspected present and contributing).
 - c. Factor(s) that did not contribute to the accident but contributed to the severity of the injuries (present and contributing to the severity of the injury or extent of property damage).
 - d. Factor(s) that did not contribute to the accident but could cause injuries or adversely affect the safety of continued operations if left uncorrected (present but not contributing (PBNC)).

NOTE: Although PBNCs do not contribute to the accident being investigated; they are still invaluable for the later identification of Army wide hazards and controls during the second phase of the accident prevention process.

- e. Factor(s) that in no way contributed to the accident but identify local conditions or practices that should be corrected; for example, minor administrative errors in records keeping, inadequate procedures, and/or lack of required SOPs, directives, and so forth.

Although these factors do not have to be addressed in the analysis or listed in the findings and recommendations part of the technical report, they should be subsequently briefed to the lowest level commander capable of taking corrective action.

6. Explaining human error(s). Select the most descriptive task error that caused or contributed to the accident from the list in DA PAM 385-40, Appendix B (Table B-1 for aviation or Table B-2 for ground). The more specific the error, the easier it is to determine

the system inadequacies or root causes of that error and the corrective actions required. Also, specific task errors help USASC accurately identify accident trends. Regardless of the task involved (for example, inadequate planning, installing a tail rotor, changing brake pads/shoes, and so forth); the explanation of how it was improperly performed should identify the directive, standard; and the performance deviated from or not complied with. The fact that an error occurred in itself has little meaning until its consequences and relevance to the accident are also explained. This is a key concept to understand before analyzing the accident data and during the actual writing of the findings and recommendations. Therefore, the defining and explanation process for human errors is not complete or meaningful until--

- a. It is determined when and where the task error occurred.
- b. The duty position of the individual involved is identified.
- c. The task the individual performed improperly in the context of the accident sequence is explained.
- d. The human error(s) is identified in relation to the deviation from a performance standard and the proper procedure for performing the task is identified.
- e. How the human error(s) caused or contributed to the accident is identified (the effect).

These five lines make up part 1 of the finding - the task error. There is only one task error per finding, but there can be multiple system inadequacies setting the stage for that one task error.

7. The next step is to determine the root causes or system inadequacies that set the stage for the task error and place them into the timeline. Again these could be latent failures that occurred hours, days, or months prior to the accident that set the condition for failure. The best way to identify system inadequacies is to work backwards from a mistake/error by asking questions aimed at "illuminating" the error. It is important to understand that the system inadequacy may have occurred minutes, hours, days, weeks, or even months before the task error. The most direct source of information is the individual who made the error or the supervisor(s) of the individual. The interview transcripts may need to be reviewed and the tapes listened to again. These individuals may need to be re-interviewed for specificity of detail. Records and orders may need to be re-examined. The human factors investigator will also have information from other sources. These include individual records, unit records, and other individuals who may have knowledge about the individual or the accident. A post-

accident medical examination may identify physiological factors; for example, acute fatigue, alcohol, carbon monoxide, drugs, impaired vision, and so forth. The analysis should include a review of the previous command inspections, FORSCOM Aviation Resource Management Surveys (ARMS), previous accidents, safety council minutes, QDRs, etc. for any trends of known deficiencies and the corrective actions taken by the command.

As the system inadequacy is discovered, ask these questions and record the answers:

- a. Why the system inadequacy caused or contributed to the accident.
- b. Briefly explain how (explanation) each system inadequacy contributed to the accident.

This becomes part two of the finding, the System Inadequacy. Ensure this is added to the timeline/event chart.

8. The next step is to develop recommendations that will correct the system inadequacies NOT the task errors. These recommendations are developed for the local command to take immediate action and for higher headquarters to develop plans to correct Army-wide hazards.
 - a. When the board has reached a consensus on each significant factor involved in the accident, a concerted effort is necessary to develop corrective actions having the best potential for remedying each system inadequacy. The goal is to get accurate information and timely recommendations to the appropriate command level for an informed decision. When a board consensus concerning remedies is achieved, the commands or activities having proponentcy for correcting the system inadequacies will be identified. When this is accomplished, the remedial measures proposed in the technical report can then be directed to the activities and levels of command best capable of accomplishing them. To achieve the goal of accident prevention, recommendations should not focus on specific punitive or administrative actions that might deal with the shortcomings of a particular individual in a specific case. Rather, the recommendations should address the issue on a broader level. Each recommendation will identify the actions to be taken at the appropriate level of command, such as, unit-level actions, higher-level actions, DA-level action, or the agency/activity most appropriate to fix the system inadequacies. The recommendations will be written in conjunction with the findings and will be included in the technical report of the accident. It is important to provide the

local commander with recommendations to address his local situation, but it is equally important to provide the Chief of Staff of the Army with recommendations to address the Army wide hazards.

- b. The board president should not allow unresolved issues to be debated indefinitely during deliberations. If a board consensus on an issue cannot be reached within a reasonable amount of time, the board president will decide the issue and continue with the proceedings. There are provisions for submitting a minority report.

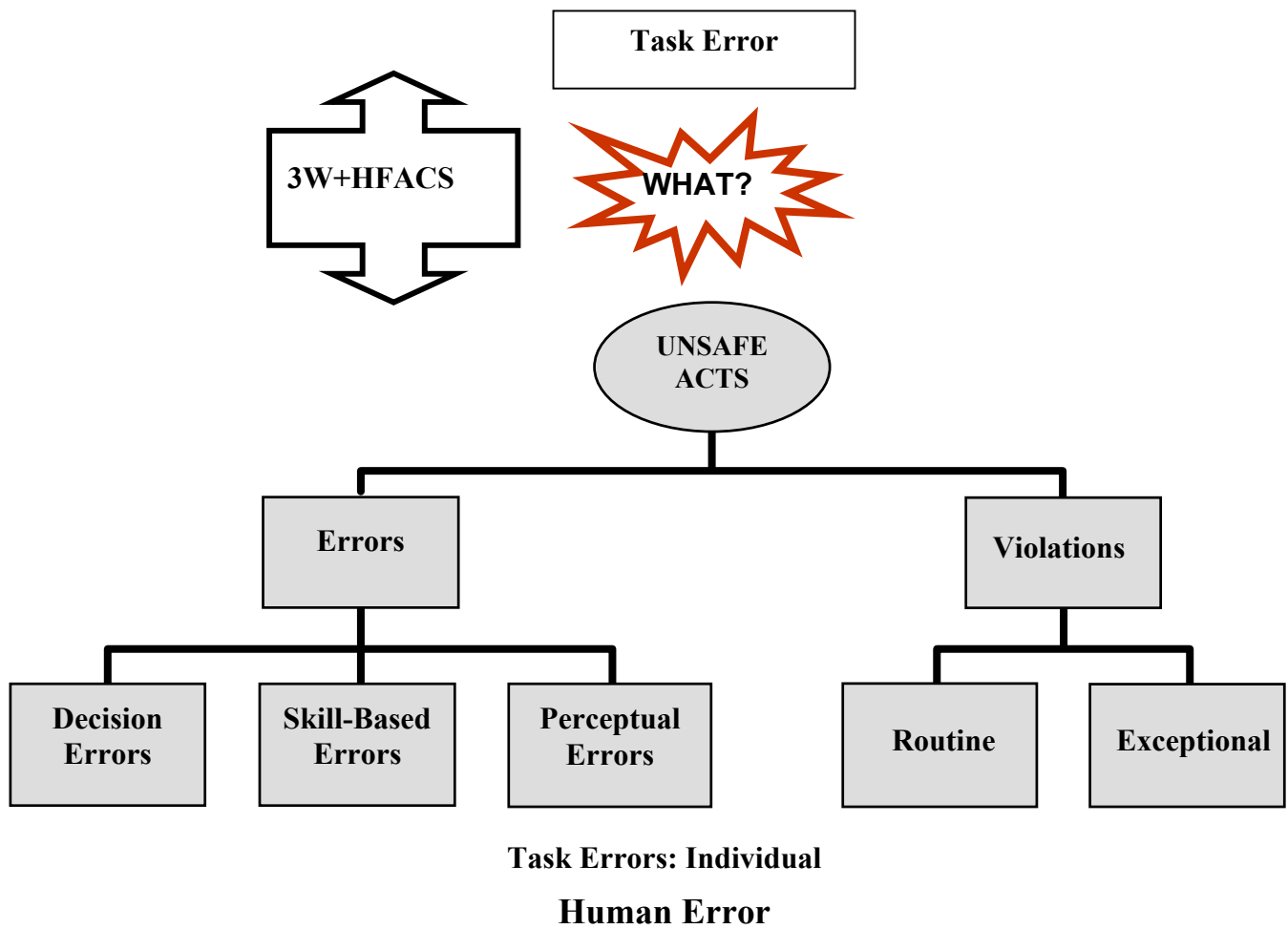
It may become apparent during the deliberations that evidence is conflicting. In such cases, the board usually has two choices:

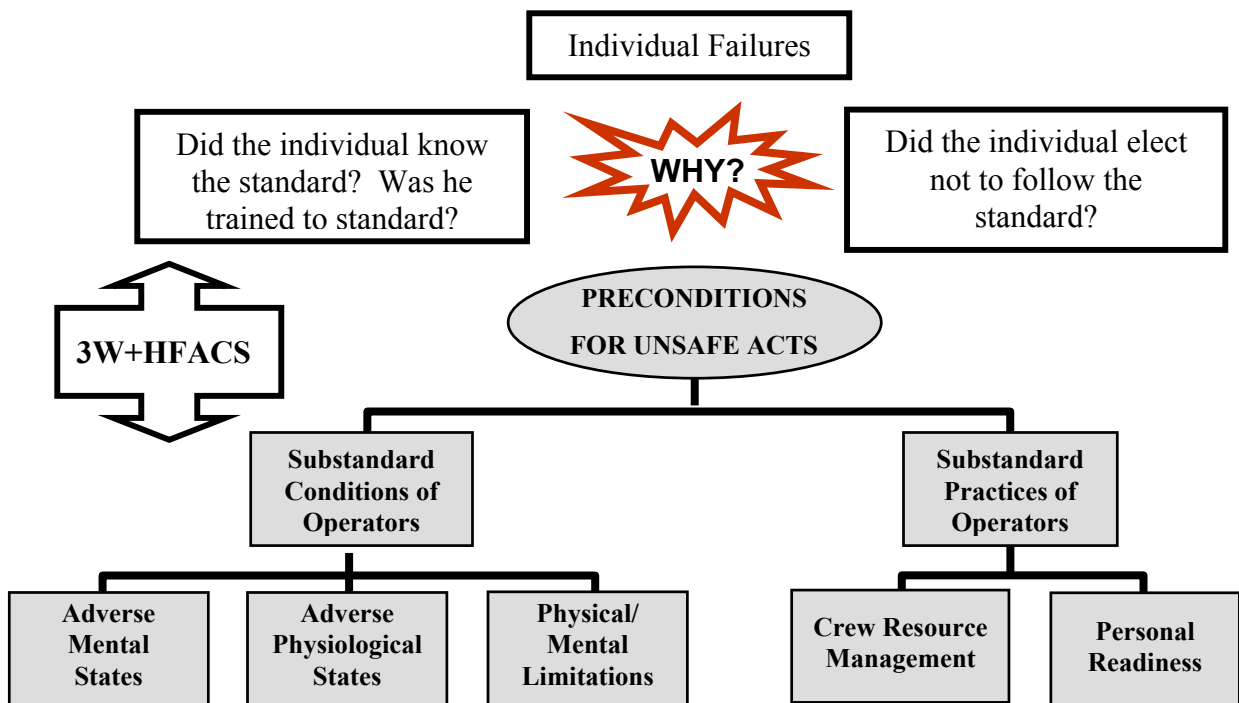
- 1) They may further question personnel involved or other witnesses. If this approach is used, it is probably best to come directly to the point; such as, inform the personnel being questioned of the conflict and ask for an explanation.
 - 2) If the first approach does not resolve the conflict, it may be possible to rationalize why the conflict exists and then develop a hypothetical explanation. In any case, the board is responsible for resolving conflicts and must carefully weigh the evidence and decide what is most credible.
9. Once all anomalies are reviewed and findings and recommendations drafted, the board president and recorder, in consonance with the board members, work to complete the written history, narrative, analysis, findings and recommendations IAW DA PAM 385-40. The board reviews the completed work for technical accuracy and consistency. Any discrepancies are corrected.

NOTE: The "3-W" is the approach for writing the finding and recommendations. The "HFACS" is a roadmap for analyzing human factors to discover active "unsafe acts" and the latent conditions that set the stage for these unsafe acts. The information gleaned from the HFACS analysis is plugged into the findings and recommendations where appropriate.

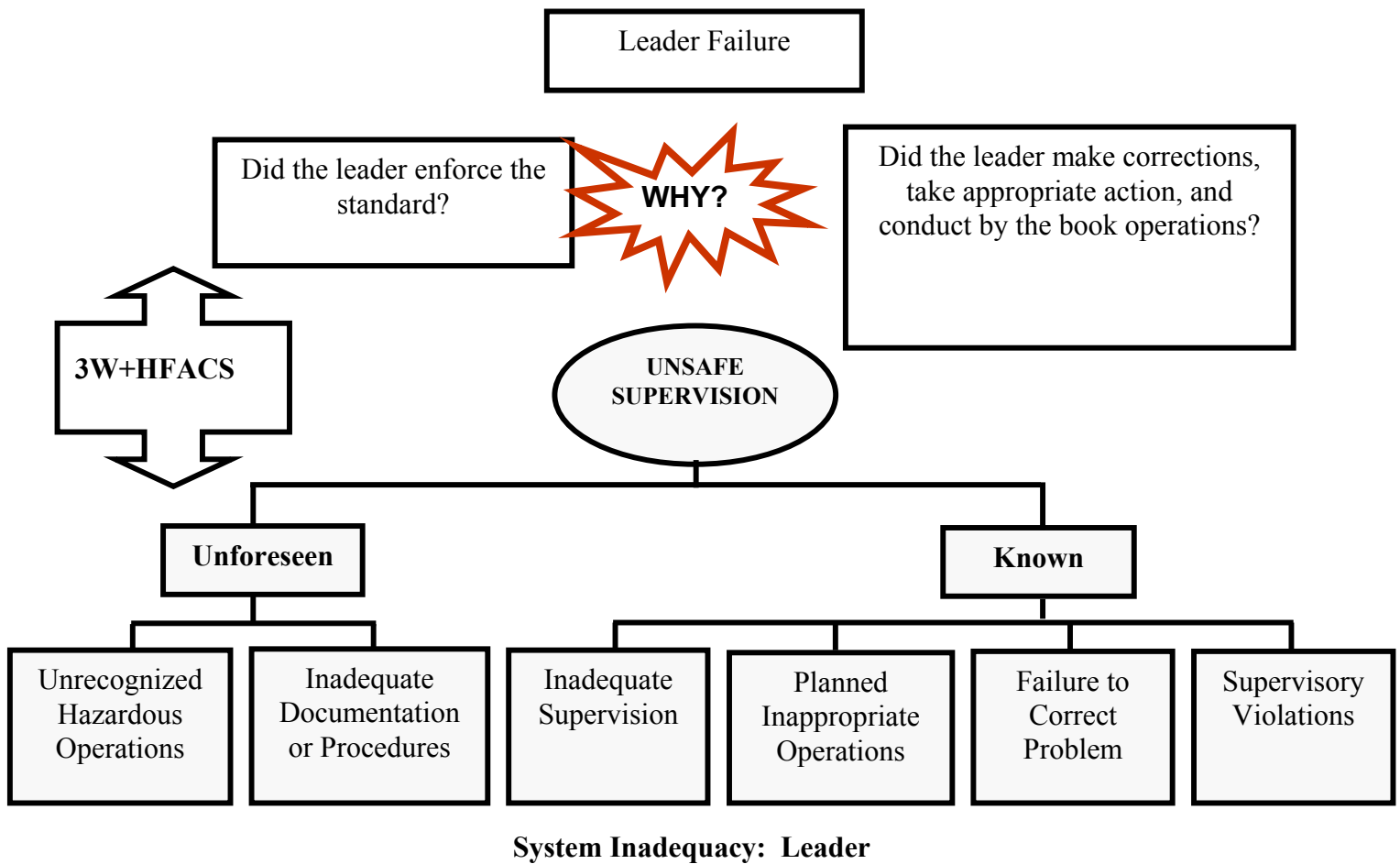
The "lowest level" of the HFACS model (unsafe acts) is generalized versions of the 3W's task errors. The next level of HFACS "preconditions of unsafe acts" are similar to the 3W "system inadequacies" aimed at the individual who committed the unsafe act. The next level of HFACS, "unsafe supervision", covers leader, training, and standards system inadequacies. The last level of HFACS, "Organizational Influences", falls within the 3W Support system inadequacy. Don't get hung up on categorizing the "unsafe act" (i.e., whether the task error falls under a decision error, skill based error,

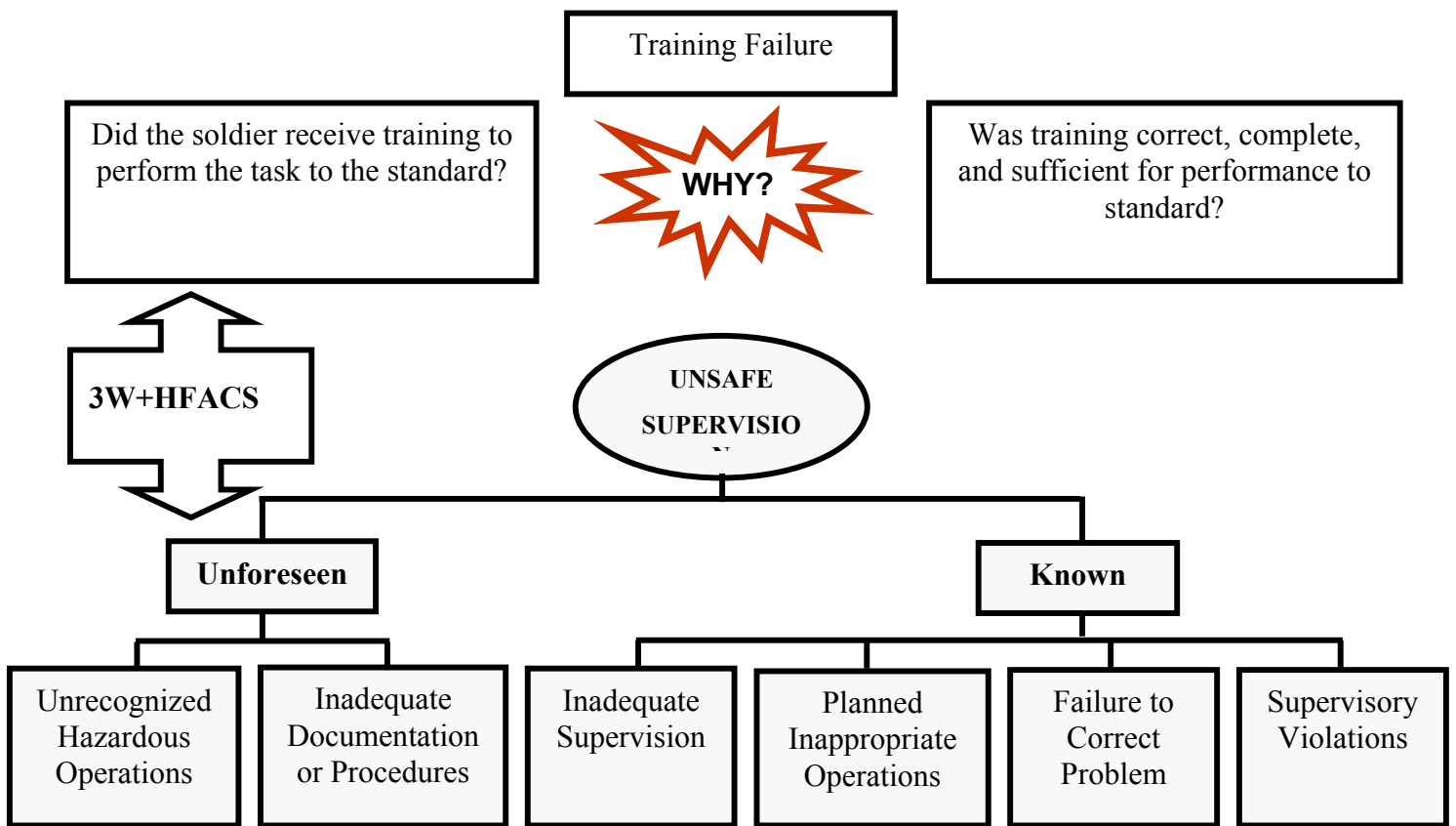
etc.). If it falls in several areas, list it in those areas. These will merely assist you in determining the system inadequacies or root causes of the task error and if there is a correlating factor in the DTLOMS. For example, if you determine that the pilot's failure to accurately estimate control input (over control the aircraft) (3W task error code P05) was a skill-based error (categorized specifically as an execution failure in the HFACS), this may point you in the direction of a proficiency issue (i.e., 3W code 07 - a training system inadequacy due to insufficient experience in that particular task). In reference to the DTLOMS, this lack of proficiency may be linked to the Army's reduced flying hour program or the inability of the accident unit to train in a simulator due to geographical constraints.



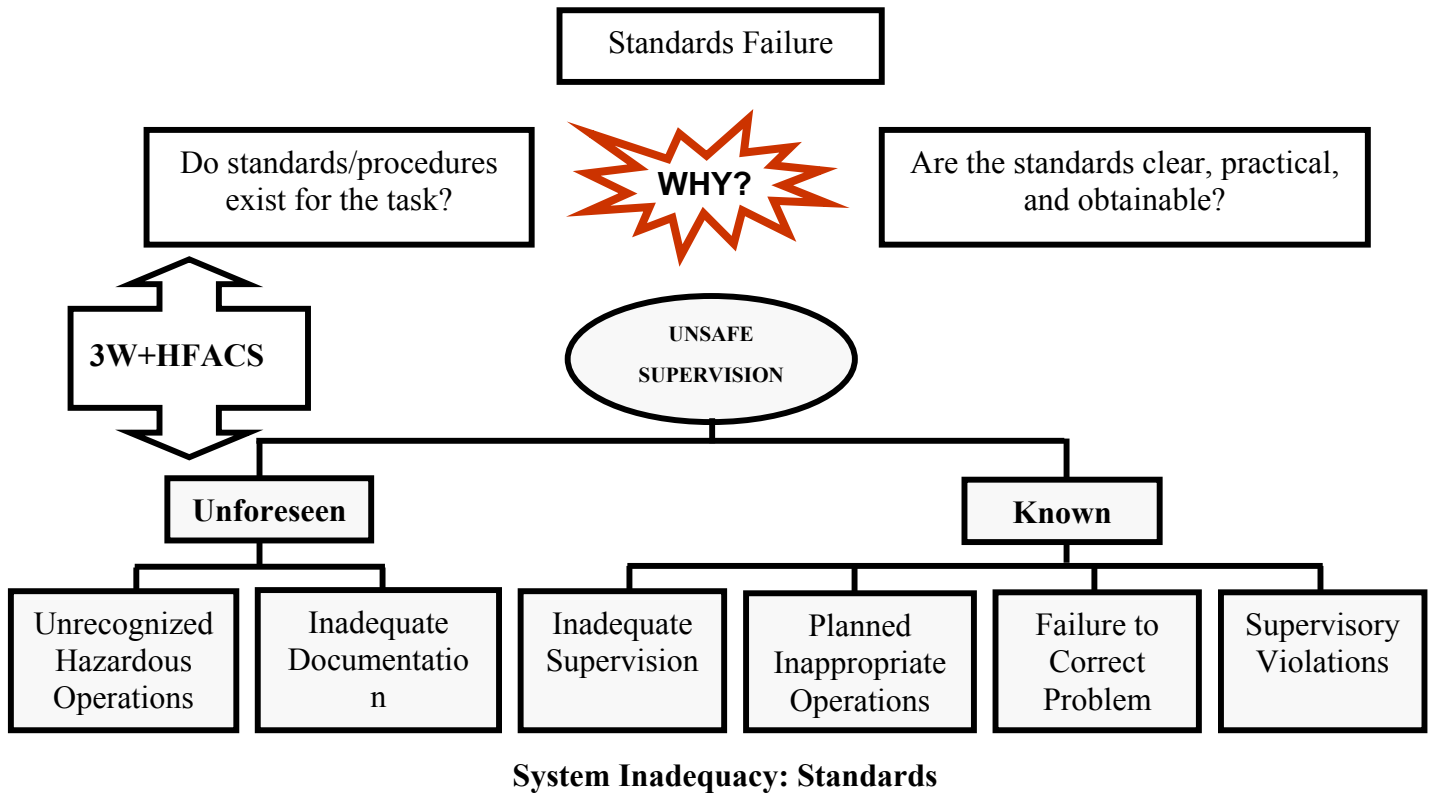


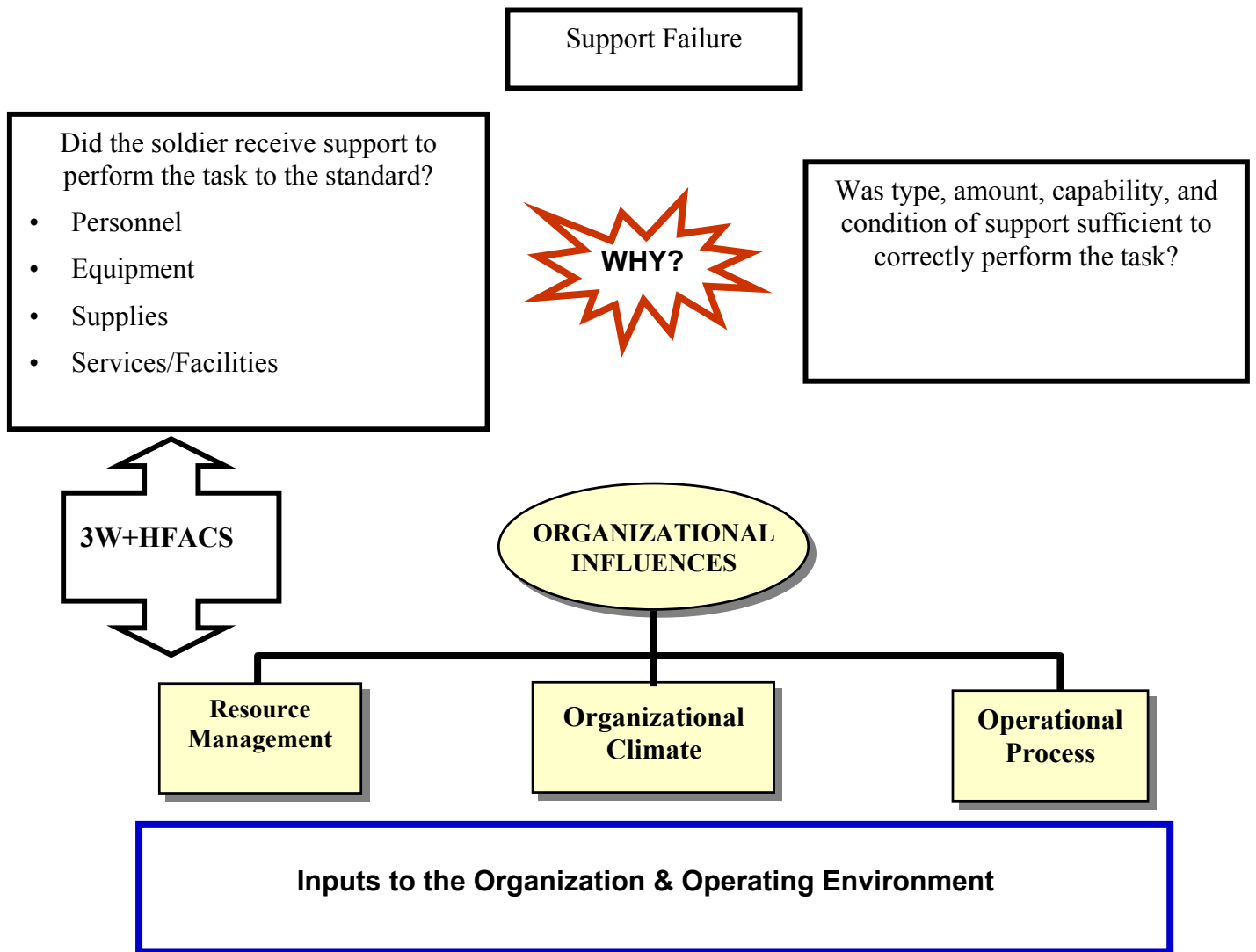
System Inadequacy: Individual





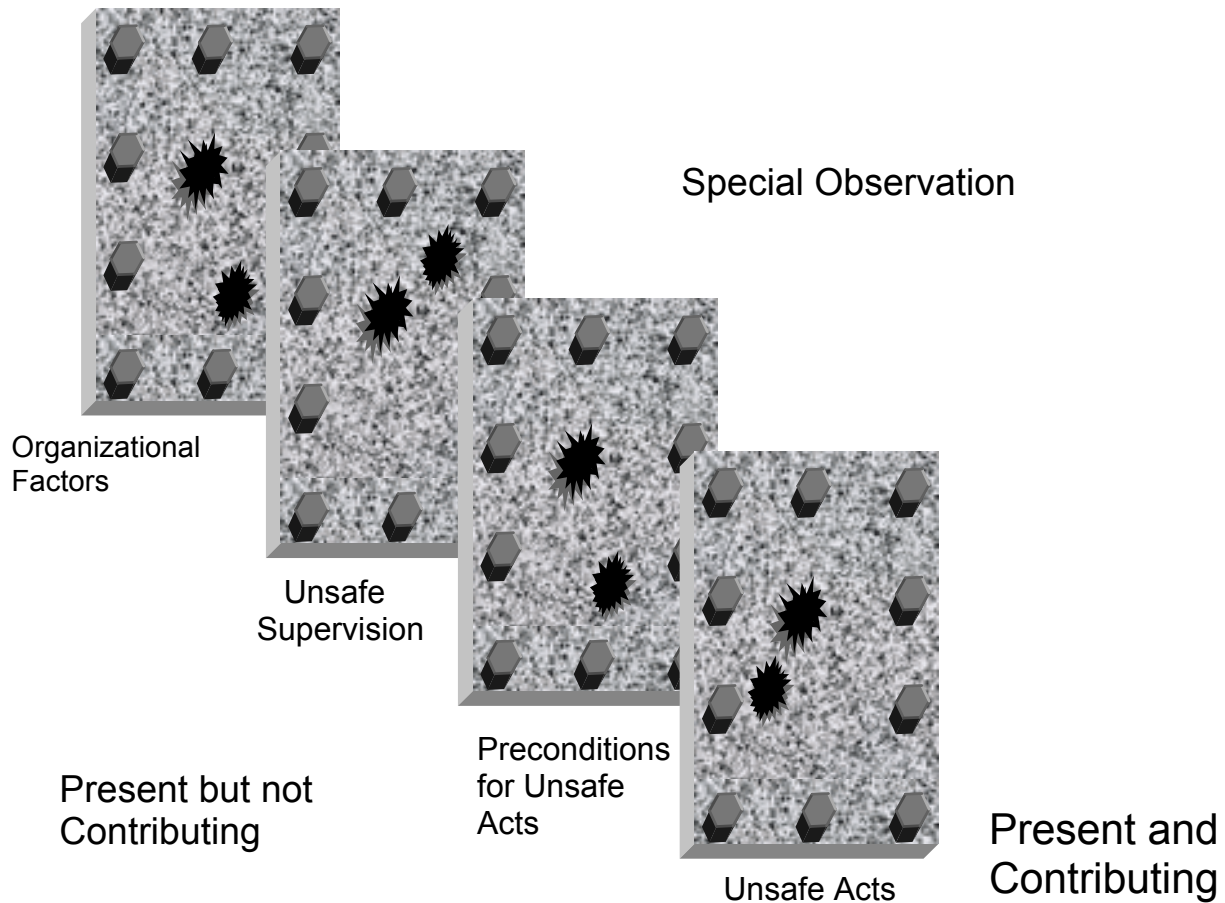
System Inadequacy: Training





Operating Environment:
Garrison, CTC, OOTW, and
Combat

Inputs to the Organization:
Cost Cutting, Retention and
Recruiting, Multiple Tasking



Integration of 3W and HFACS

Appendix C

Crash Dynamics

Temperature Conversions

Fahrenheit to Celsius

$$^{\circ}C = (5/9)(^{\circ}F - 32)$$

Celsius to Fahrenheit

$$^{\circ}F = 1.8(^{\circ}C) + 32$$

Celsius to Kelvin

$$^{\circ}K = ^{\circ}C + 273$$

Fahrenheit to Rankin

$$^{\circ}R = ^{\circ}F + 460^{\circ}$$

Kelvin to Rankin

$$^{\circ}R = \frac{9}{5} K^{\circ}$$

Velocity Calculations

Speed of Sound

$$C = 49\sqrt{^{\circ}R}$$

Rotor Tip Blade Speed

$$V_t \left[\frac{\text{Ft}}{\text{Sec}} \right] = \frac{RPM \bullet r(\text{Ft})}{9.55}$$

V_t =Rotor tip velocity in feet per second

$r(\text{Ft})$ =radius of rotor in feet

Crash Dynamics Calculations

Glide Ratio

$$GR = \frac{TAS(100)}{R / D}$$

GR=Glide Ratio

R/D=Rate of Descent

TAS=True Airspeed (knots)

Tree Strike Flight Path Angle

$$\text{Tangent } FP = \frac{TH}{TD}$$

TH=Tree Height

TD=Tree Distance

Determining Tree Height

$$TH = \frac{TD \bullet SH}{SD}$$

TH=Tree Height

TD=Tree Distance

SH=Sighted Height

SD= Sighted Distance

Impact Velocity

$$V_v = 8\sqrt{S}$$

V=Change in velocity due to free fall

S=the amount of free fall

Impact Peak G-Forces

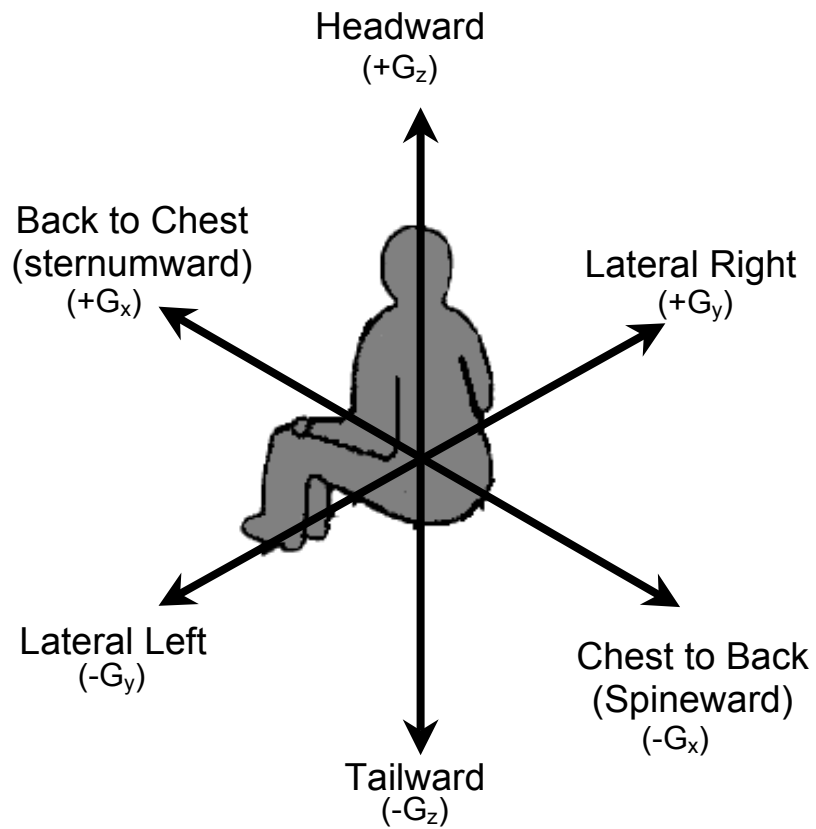
$$G_p = \frac{V^2}{32d}$$

Gp=Peak G-Forces

V2=Vertical velocity

d=Decelerative Distance (the effective stopping distance structural collapse + ground gouging)

Decelerative Forces



Vertical

| Direction of Force | Indicator | Decelerative G-Forces |
|--------------------|---------------|-----------------------|
| Headward | eyeballs down | 20G |
| Tailward | eyeballs up | 15G |

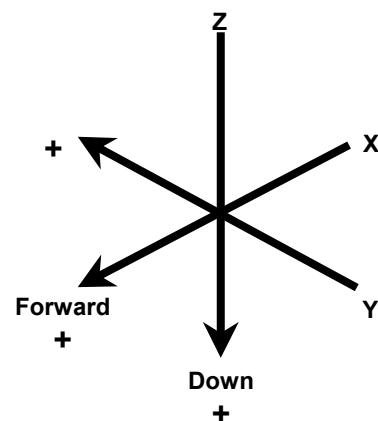
Transverse

| Direction of Force | Indicator | Decelerative G-Forces |
|--------------------|----------------|-----------------------|
| Lateral right | eyeballs left | 20G |
| Lateral left | eyeballs right | 20G |
| Back to Chest | eyeballs in | 45G |
| Chest to Back | eyeballs out | 45G |

Note: The accelerative force on the body works in the same direction as the arrow.

Aircraft Load Factors

| Aircraft | Transmission & Rotor | | | Engine | | | Seats | | | Landing Gear |
|----------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|
| | N _x | N _y | N _z | N _x | N _y | N _z | N _x | N _y | N _z | Sink Rate |
| AH-1 | ±8 | ±8 | ±8 | ±15 | ±5 | ±15 | +15 -5 | ±15 | ±15 | 8-10 fps |
| OH-58 | ±16 | ±8 | ±16 | ±16 | ±8 | ±16 | ±20 | +10 | ±20 | 10-15 fps |
| UH-1 | ±8 | ±8 | ±8 | ±8 | ±1.5 | ±8 | +15 -5 | ±15 | +15 -7.5 | 8-10 fps |
| UH-60 | ±20 | ±18 | +20 -10 | ±20 | ±18 | +20 -10 | +20 -12 | +10 | +25 -8 | 20 fps |
| AH-64 | ±20 | ±18 | +20 -10 | ±20 | ±18 | +20 -10 | +20 -12 | +10 | +25 -8 | 30 fps |
| CH-47 | ±8 | ±8 | ±8 | ±8 | ±8 | ±8 | ±8 | ±8 | ±8 | 6 fps |
| CH-54 | ±10 | ±5 | ±10 | ±10 | ±5 | ±10 | ±10 | ±5 | ±10 | 9.8-12 fps |
| OH-6 | ±17 | ±15 | ±17 | ±20 | ±6 | ±12 | ±20 | ±10 | ±20 | 15 fps |



Appendix D

Metal Fatigue and Stresses

Stresses and Strains on Aircraft

Structural integrity is a major factor in aircraft design and construction. No production airplane leaves the ground before undergoing extensive analysis of how it will fly, the stresses it will tolerate and its maximum safe capability.

Every airplane is subject to structural stress. Stress acts on an airplane whether on the ground or in flight. Stress is defined as a load applied to a unit area of material. Stress produces a deflection or deformation in the material called strain. Stress is always accompanied by strain. Current production general aviation aircraft are constructed of various materials, the primary being aluminum alloys. Rivets, bolts, screws and special bonding adhesives are used to hold the sheet metal in place. Regardless of the method of attachment of the material, every part of the fuselage must carry a load, or resist a stress placed on it. Design of interior supporting and forming pieces, and the outside metal skin all have a role to play in assuring an overall safe structure capable of withstanding expected loads and stresses.

During initial certification, the FAA determines if good, standard practices of design and construction are adhered to. Strict compliance with the regulations applicable to the category of aircraft being designed (FAR Part 23 for most general aviation aircraft) is mandatory. Every part used in the aircraft, whether it be a stringer, former, bulkhead, longeron, or any attaching hardware must meet safety criteria, not only for the certification period, but for the expected life of the airframe under design conditions of use. Some airframe parts such as wing spar carry through assemblies require high strength. Others, such as cowlings, while not requiring as much strength, still must be capable of withstanding some loading and stress, as well as contributing to an aerodynamically clean design. The stress a particular part must withstand is carefully calculated by engineers. Also, the material a part is made from is extremely important and is selected by designers based on its known properties. Aluminum alloy

is the primary material for the exterior skin on modern aircraft. This material possesses a good strength to weight ratio, is easy to form, resists corrosion, and is relatively inexpensive.

Fittings must be made of carefully selected materials because of their importance of holding the aircraft together under expected stress and loading. The same holds true for important fasteners such as bolts and rivets. It is essential that these parts not fail under stress. It is also essential that these parts not weaken with exposure to stress and weather elements.

Corrosion is also a consideration. A fitting made of one metal cannot be secured to the structure with a bolt or fastener made of another metal. This situation may result in “dissimilar metal corrosion” over a period of time and result in a weakening of the assembly to the extent that the assembly is rendered unsafe.

Types Of Structural Stress

The five basic structural stresses to which aircraft are subject are:

1. Tension
2. Compression
3. Torsion
4. Shear
5. Bending

While there are many other ways to describe the actual stresses which an aircraft undergoes in normal (or abnormal) operation, they are special arrangements of these basic ones.

“Tension” is the stress acting against another force that is trying to pull something apart. For example, while in straight and level flight the engine power and propeller are pulling the airplane forward. The wings, tail section and fuselage, however, resist that movement because of the airflow around them. The result is a stretching effect on the airframe. Bracing wires in an aircraft are usually in tension.

“Compression” is a squeezing or crushing force that tries to make parts smaller. Anti-compression design resists an inward or crushing force applied to a piece or assembly. Aircraft wings are subjected to compression stresses. The ability of a material to meet compression requirements is measured in pounds per square inch (psi).

“Torsion” is a twisting force. Because aluminum is used almost exclusively for the outside, and, to a large extent, inside fabrication of parts and covering, its tensile strength (capability of being stretched) under torsion is very important. Tensile strength refers to the measure of strength in pounds per square inch (psi) of the metal. Torque (also a twisting force) works against torsion. The torsional strength of a

material is its ability to resist torque. While in flight, the engine power and propeller twist the forward fuselage. The force, however, is resisted by the assemblies of the fuselage. The airframe is subjected to variable torsional stresses during turns and other maneuvers.

“Shear” stress tends to slide one piece of material over another. Consider the aircraft fuselage. The aluminum skin panels are riveted to one another. Shear forces try to make the rivets fail under flight loads; therefore, selection of rivets with adequate shear resistance is critical. Bolts and other fasteners are often loaded in shear, an example being bolts that fasten the wing to the spar or carry-through structure. Although other forces may also be present, shear forces try to rip the bolt in two. Generally, shear strength is less than tensile or compressive strength in a particular material.

“Bending” is a combination of two forces, compression and tension. During bending stress, the material on the inside of the bend is compressed and the outside material is stretched in tension. An example of this is the G-loading an airplane structure experiences during maneuvering. During an abrupt pull-up, the airplane’s wing spars, wing skin and fuselage undergo positive loading and the upper surfaces are subject to compression, while the lower wing skin experiences tension loads. There are many other areas of the airframe structure that experience bending forces during normal flight. An airplane structure in flight is subjected to many and varying stresses due to the varying loads that may be imposed. The designer’s problem is trying to anticipate the possible stresses that the structure will have to endure, and to build it sufficiently strong to withstand these. The problem is complicated by the fact that an airplane structure must be light as well as strong. The manufacturer states upon certification that the design meets or exceeds all FAR requirements for the category of aircraft being produced. However, hard landings, gust loads caused by extreme turbulence, performing aerobatic maneuvers in a non-aerobatic airplane, etc., can affect the airworthiness of one or more major airframe assemblies to the extent that the airplane is no longer airworthy. This reiterates the necessity of operating the aircraft within the limitations outlined by the manufacturer. Every flight imposes loads and stresses on the aircraft. How carefully it is flown, therefore, will have an effect on the service life of its assemblies.

Fuselage Design And Construction

The fuselage structures of general aviation aircraft today can usually be divided into the truss, monocoque, or the semi-monocoque types. Truss or framework types of construction have wood, steel tube, aluminum tube, or other cross sectional shapes which may be bolted, welded, bonded, pinned, or riveted into a rigid assembly. The vertical

and diagonal cross-members are arranged to withstand both tension and compression loads. This type of fuselage has been in use for about 80 years. It is very strong and of relatively light weight. The truss assembly is usually covered with a fabric skin. The fabric skin is usually doped and painted which makes it taught and airtight, and adds to its strength. Although cloth fabric is not considered a primary structural member, some aircraft are covered with a glass cloth or mat consisting of impregnated glass fiber reinforced with epoxy or other resins, and which is sometimes part of the primary structure. Both the monocoque and semi-monocoque fuselage structures use their covering or skin as an integral structural or load carrying member. Monocoque (single shell) structure is a thin walled tube or shell which may have rings, bulkheads or formers installed within. It can carry loads effectively, particularly when the tubes are of small diameter. The stresses in the monocoque fuselage are transmitted primarily by the strength of the skin. As its diameter increases to form the internal cavity necessary for a fuselage, the weight-to-strength ratio becomes more efficient, and longitudinal stiffeners or stringers are added to it. This progression leads to a semi-monocoque fuselage, which depends primarily on bulkheads, frames and formers for vertical strength, and longerons and stringers for longitudinal strength. Semi-monocoque is the most popular type of structure used in aircraft design today. Use of this concept has enabled aircraft designers to use aluminum skins as light as .016 inch in thickness for primary structure on airplanes as large as the modern light twins. Stressed skin construction has come to be the standard for most general aviation aircraft builders. The metal skin exterior is riveted, or bolted and riveted, to the finished fuselage frame, with the skin carrying some of the overall loading. The skin is quite strong in both tension and shear and, if stiffened by other members, may be made to carry some compressive load.

Wing Structure

Wings may be either strut braced or full cantilever, depending on whether (as in many smaller aircraft) an external brace is employed to help transmit loads from the wing to the fuselage. Cantilever wings must resist all loads with their own internal structure.

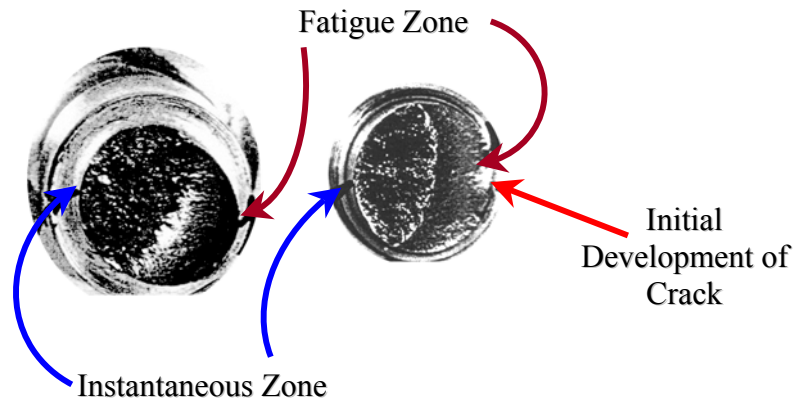
Small, low speed aircraft have straight, nearly rectangular wings. For these wings, the main load is in bending of the wing as it transmits load to the fuselage, and the bending load is carried primarily by the spars. In fact, the spars are the main structural pieces in a wing assembly. Attached to the spars are ribs that give the aerodynamic shape to the wing. During flight, stresses are transmitted first to the wing skin, then to the ribs, and finally to the spars. Spars also must carry loads distributed by the fuselage, landing gear and any nacelles.

Stress is a fact of life for airplanes; it is always present in one form or another. The primary concern for the owner/pilot should be to not put any undue stress on the aircraft. Treat it gently, by operating it within its design limitations. Normal stress (and occasional abnormal stress) is not a problem for an aircraft that is properly designed. But, the airplane must be properly flown and maintained in order to keep it airworthy

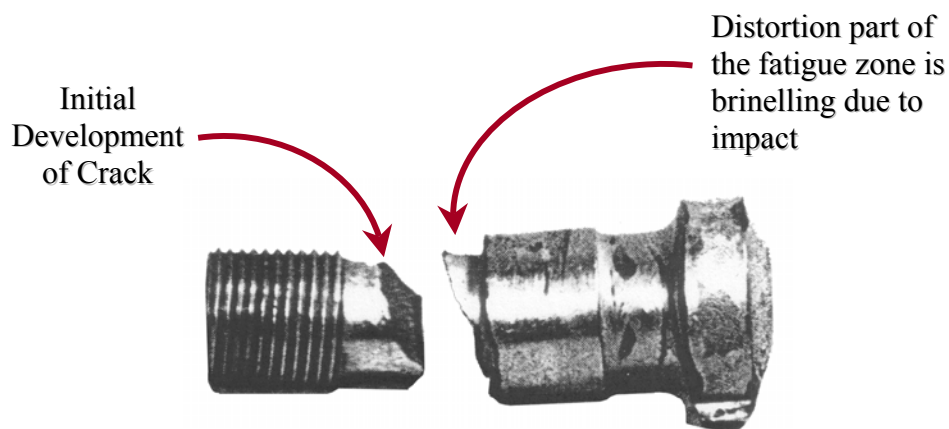
Examples

The following pages contain examples of metal fatigue failures that might be encountered as part of an accident investigation.

Fatigue Failure of Attachment Bolt

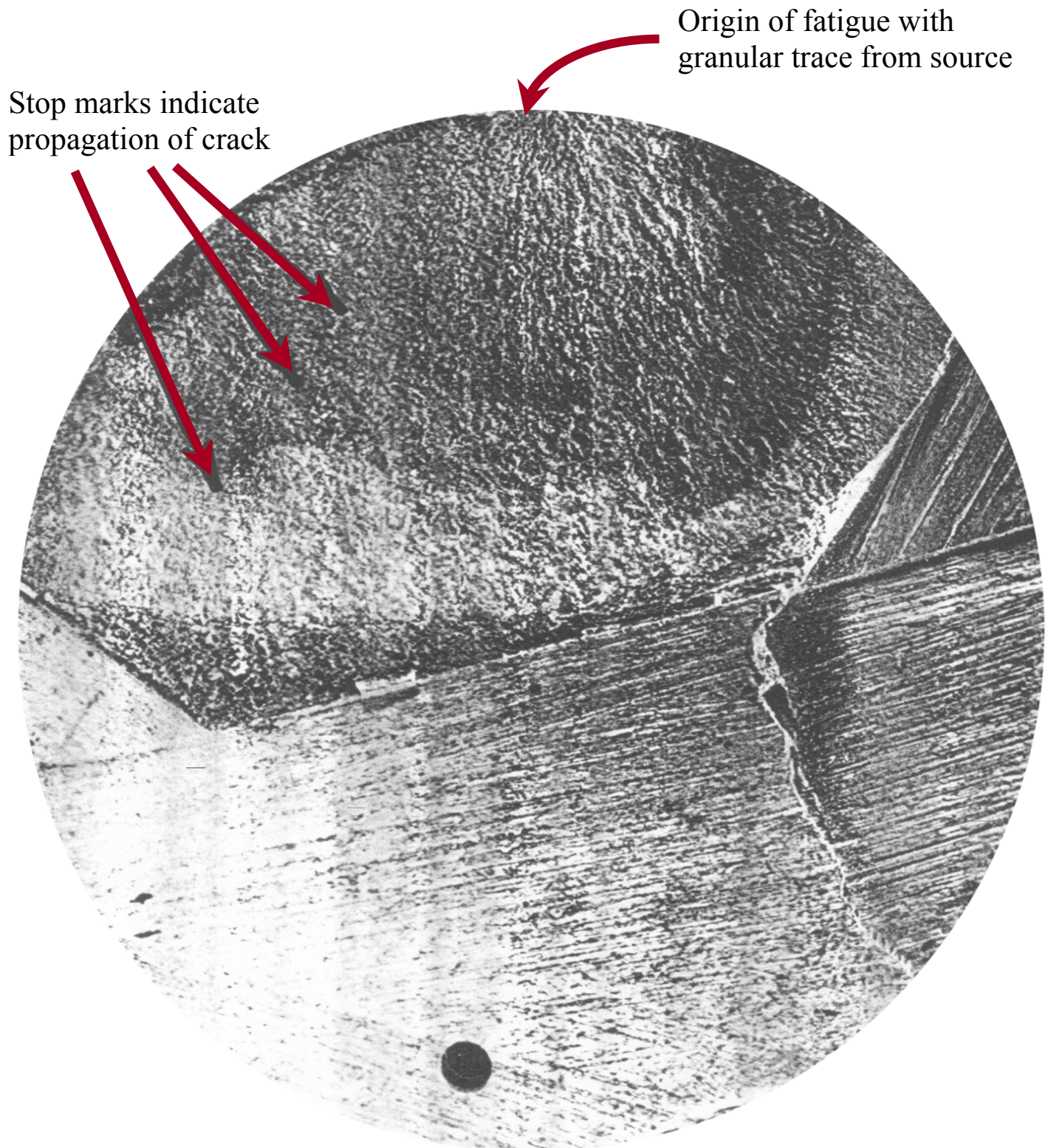


The initial development of the crack and the convex boundary between the fatigue and instantaneous zones indicates a high surface stress concentration. Machine tool marks on the surface are the source for the initial development of the crack.

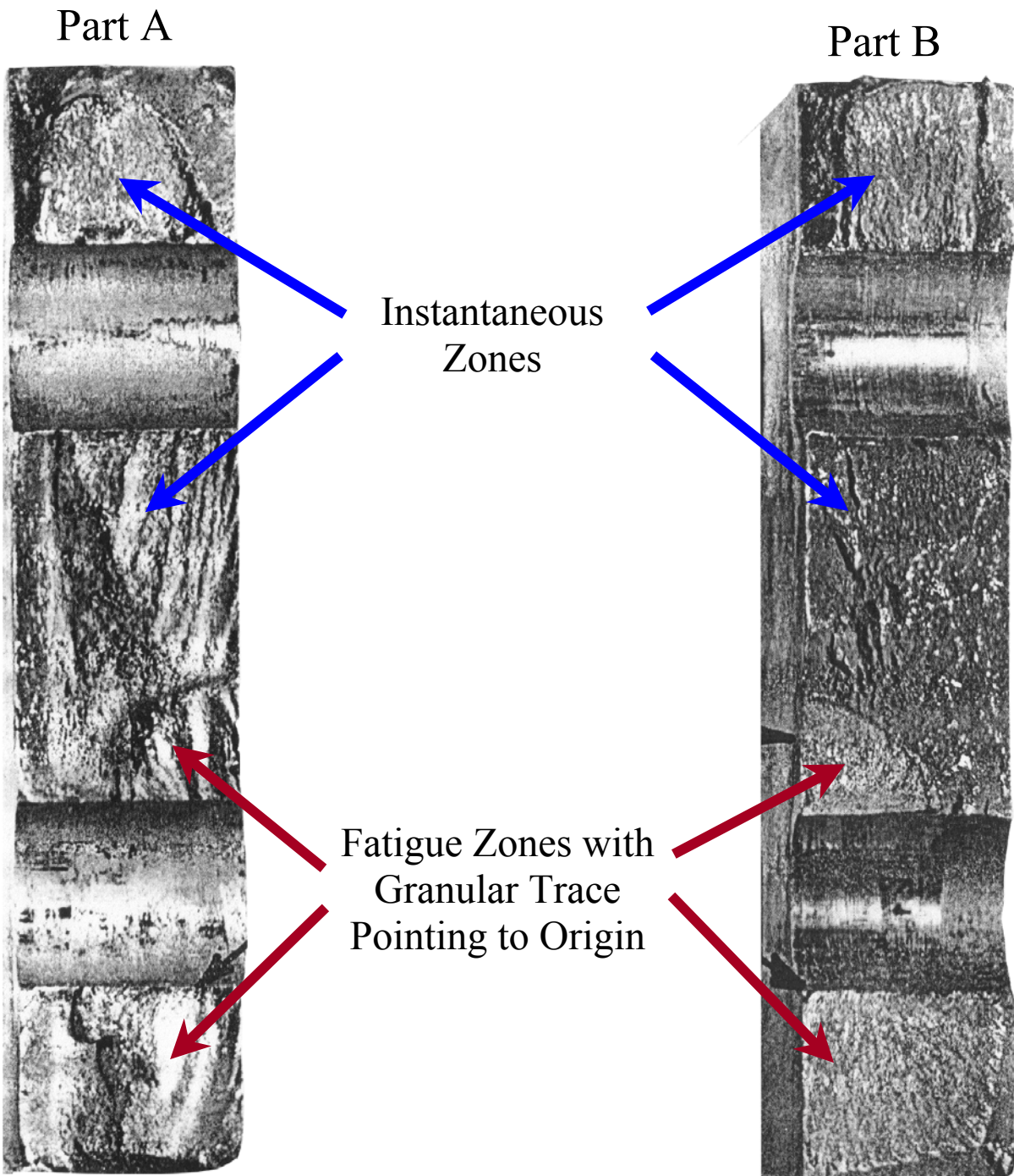


Fatigue zone beginning and continuing at an angle of approximately 25° denotes combined loads of shear and tension produced failure. The principal tensile stress is perpendicular to the fatigue surface.

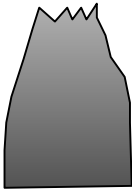
Fatigue Failure of Propeller Shank



Fracture Area of Double Lap Joint

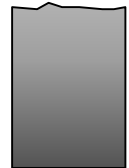


Characteristic Tension Failures

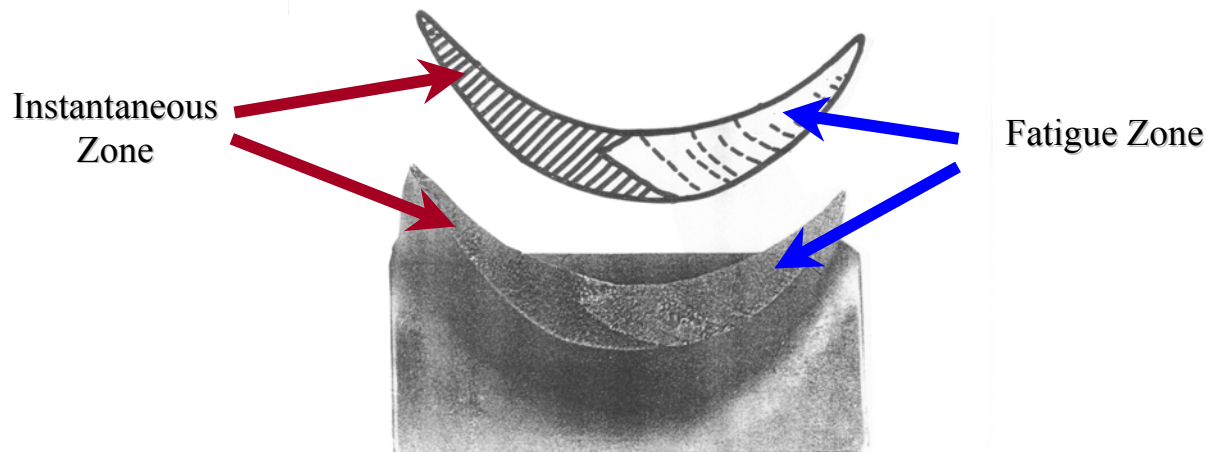


Ductile Type Failure – Evidence of necking down with jagged 45° edges around periphery of fracture

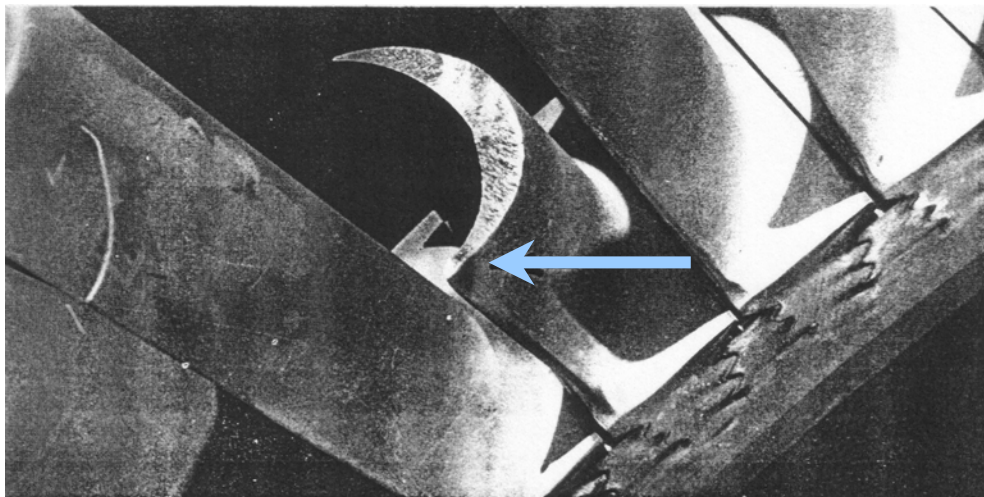
Brittle Type Failure – No 45° edges, no necking down; fracture 90° to applied tensile stress.



Turbine Blade Fatigue

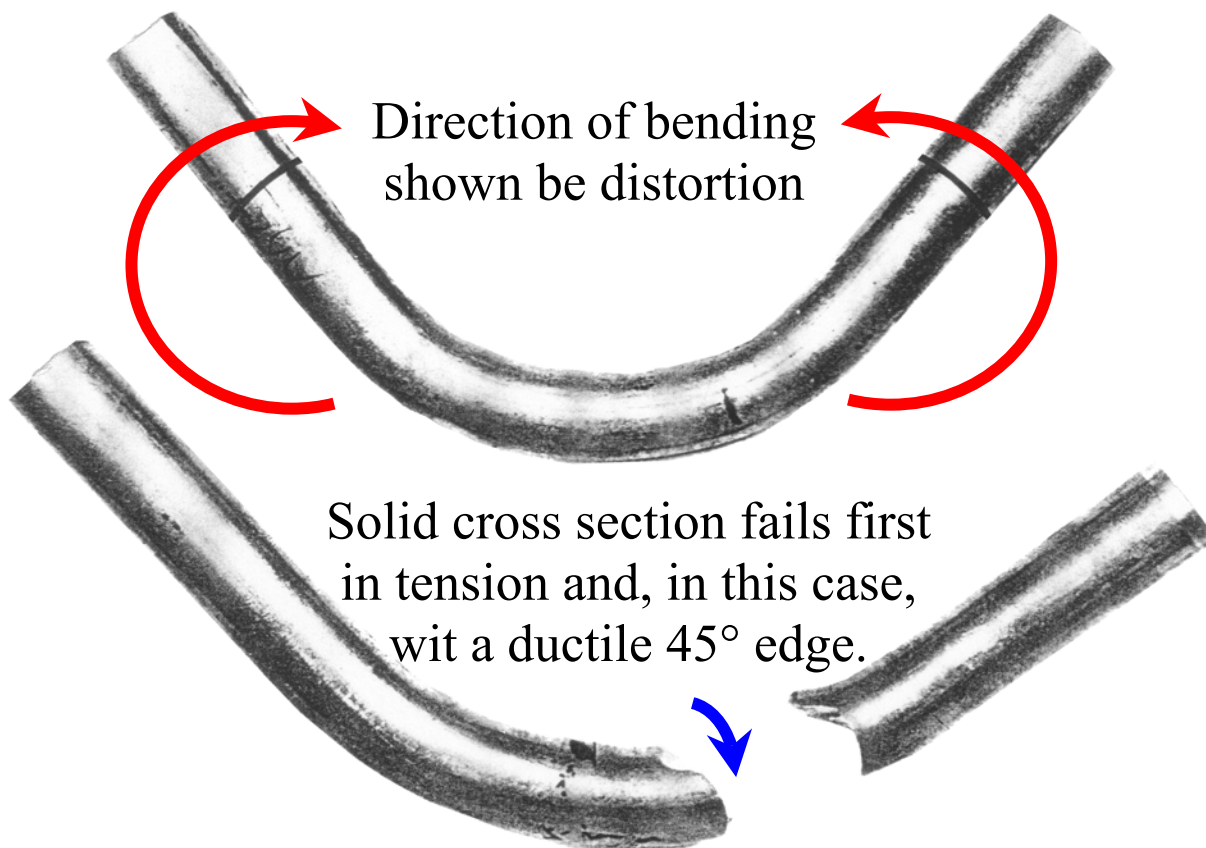
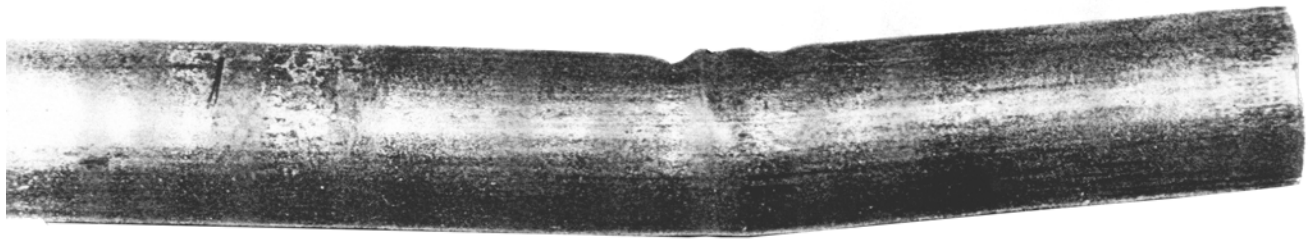


Fatigue failure of turbine blade beginning at a discontinuity on the leading edge. Note ductile lip of final fracture at trailing edge.



Bending Failure

Thin walled tube fails by compression



Appendix E

Composite Accident Investigation

Accidents involving composite materials which fragment or burn upon, or after, impact or collision may pose a significant health threat to investigation teams. To preclude potential harm, certain actions must be taken by investigating personnel to minimize danger. This section explains those actions.

Responsibilities

1. **Safety Personnel:** Safety personnel must evaluate all accidents (both air and ground) for the need to ensure that composite material will not result in endangerment to investigative personnel. Additionally, safety personnel will ensure the following:
 - a. That a Composite Material Safety Kit is issued to the Board President of an investigation team where safety from composite material is determined to be required.
 - b. That coordination is made with the activity having the accident so that on-site personnel can properly equip themselves to prevent injury.
2. **Board President:** The accident team Board President has the overall responsibility to ensure personnel are properly attired and equipped for an investigation involving composite materials. Specifically, he will:
 - a. Ensure only properly equipped board members enter the accident site area.
 - b. Ensure that recovery team support is properly attired to prevent composite material injury or illness.
3. **Individual board members:** Board members have the responsibility to ensure they use the appropriate protective equipment when subjected to fragmentation and/or burning of composite materials.

Potential Health Hazards:

1. Respirable airborne fibers. Fibers from high impact crash or fire may produce fibers with the same basic physical characteristics as asbestos. (No carcinogenic effect established for composite fibers.)
2. Exposure to smoke/fumes.
3. Skin contact with carbon fibers/debris.
 - a. Fibers easily penetrate skin and fracture easily when removal is attempted.
 - b. Dermatitis (dermal sensitizers).

Army Equipment Containing Composites

1. Some Army weapon, systems, vehicles, aircraft, and equipment contain composite materials.
 - a. Composite material: Examples: Kevlar, fiberglass, and graphite-epoxy.
 - 1) Kevlar (aramid fibers)
 - 2) Fiberglass
 - 3) Resins: epoxies; methylenedianiline; polyurethanes; urea/formaldehyde.
 - b. Use of composite material:
 - 1) Carbon based advanced composite materials are being used more and more in modern structures. Composites provide high tensile strength, stiffness, corrosion resistance, and low thermal expansion compared to conventional metal
 - 2) Aircraft structures. UH-60, AH-64, CH-47, OH-58D, AH-1 Cobra helicopters contain composite materials. Examples are: rotor blades; body sections; cargo area floor panels; door, window, and cockpit sections; and fuel cells. See handout.
 - 3) Vehicles and weapons systems. M113 APC, M2/M3 BFV, M109 155mm Howitzer, M9 Armored Combat Vehicle. Primarily Spall lining - projectile protection. See handout.
 - 4) Cab cover.
 - 5) Personnel protective equipment (PPE). Ballistic protective helmets, flight helmets, fragmentation protective vests.
 - 6) Gun mount shields.
 - 7) Special Operations Radio Antenna Kit (SORAK)

- 8) New systems being fielded.

Prevention of Personnel Exposure

1. Procedures to prevent personnel exposure to composite material:
 - a. Considerations:
 - 1) Fire
 - 2) Fragmentation
 - b. Burning aircraft or vehicles. Only firefighting/emergency rescue personnel.
 - c. Previously burned composite materials (fire extinguished no smoldering) requires all protective equipment, to include respirators, coveralls, and leather gloves with inserts, will be worn at accident site.
 - d. Fragmented composite material (no fire involved). Leather gloves with inserts as a minimum. However if composite materials are to be moved, then coveralls will also be worn.
 - e. Security. Prevent unauthorized personnel entry.
 - f. Apply fixant.
 - g. Composite material shipment. Plastic wrap.
 - h. Personal hygiene.
 - i. Disposal. All equipment (except the respirators) must be disposed of as hazardous waste material after use.
 - j. Service respirators.

Personnel Protective Equipment

Personnel working at and around the accident site with burned or fragmented composite materials must have the proper protective equipment to prevent exposure to health hazards.

1. Industrial grade fixant. Acrylic floor wax or polyacrylic acid (B. P. Goodrich XI-11) can be used.
2. Respiratory protection. Components required:
 - a. Full face dual cartridge HEPA filter respirator. Respirator is available through the supply system.
 - 1) Mask, Full Facepiece-silicone (S) NSN 4240-01-314-2780.
 - 2) Mask, Full Facepiece-silicone (M) NSN 4240-01-342-5939.
 - 3) Mask, Full Facepiece-silicone (L) NSN 4240-01-301-3200.

CAUTION:

ARMY M17/M24 MASK IS NOT A SUBSTITUTE. PERSONNEL REQUIRE MEDICAL EVALUATION, RESPIRATOR FIT TESTING, AND TRAINING PRIOR TO WEARING A RESPIRATOR.

- b. High efficiency filters. NSN 4240-01-246-5411.
 - c. High efficiency filter retainer. NSN 4240-01-231-7718.
 - d. Gasket. NSN 4240-01-247-2918.
 - e. Cartridge holder. NSN 4240-01-302-5291.
 - f. Oxygen vapor cartridge. NSN 4240-01-246-5407.
 - g. Exhalation valve. NSN 4240-01-248-2608.
3. Gloves:
- a. Gloves, leather, Mn, Wk. NSN 8415-00-268-7868.
 - b. Gloves, rubber, surgical (used as inserts for the leather gloves)
4. Tyvek disposable coveralls.
- a. Size small, NSN 8415-01-092-7529.
 - b. Size medium, NSN 8415-01-092-7530.
 - c. Size large, NSN 8415-01-092-7531.
 - d. Size XLarge, NSN 8415-01-092-7532.
 - e. Size XXarge, NSN 8415-01-092-7522.

On-site procedures

These are procedures designed to minimize the dangers of composite material fragmentation to personnel in the vicinity of the accident site.

1. **Security:** The accident site must be cordoned off with a single entry and exit point. All unauthorized personnel must be restricted from the accident site and personnel should avoid downwind locations.
2. **Post-accident fire:** Once the fire has been extinguished, the wreckage cooled, and no smoke exists, the composite materials must be sprayed with a fixate. A fixate is similar to an acrylic floor wax which can be locally purchased or commercially procured. Alternatively, polyacrylic acid (B. F. Goodrich XL-II) can be used. Either product is satisfactory and must be sprayed on the entire area consumed by fire. By doing this, the composite material fragments are held in place.
3. Prior to shipment of composite materials, ensure they are heavily wrapped in plastic.

4. All personnel must shower in cool water as soon as reasonably possible after working with burned composite materials.

All equipment (except the respirators) must be discarded as hazard waste material after use (see installation industrial hygienist for correct method of destruction). Respirators will be serviced by the safety officer upon completion of the safety investigation.

Sources of Assistance:

1. Installation Respirator Specialist @ Fit testing for respirators.
2. USASC Operations Office or Chief, Investigation Division, DSN 558-2660/3410, Commercial (334) 255-2660/3410 - Updates on composite material hazards and investigation procedures/process.
3. Local Hazardous Material Emergency Response Team - First response and training.
4. Installation Medical Authority/Occupational Health - Medical evaluation for respirator users.
5. Installation Safety and Occupational Health Manager - Coordinate, monitor and evaluate the installation respiratory protection program.

Appendix F

Accident Investigation Kit (Crash Kit)

1. Notebook Computer and durable carry case. (Computer specifications and performance should be commensurate with requirements of applicable installed software applications.)
2. Digital Camera (1 mega-pixel capability or greater). Include carrying case, extra batteries and memory modules.
3. Tools. Replace all tools with a Leatherman or Gerber tool (available through FedLog).
4. Micro-cassette Recorder. Include extra batteries and blank tapes.
5. Protective Equipment:
 - a. Leather Gloves.
 - b. Disposable Latex Gloves.
 - c. Disposable Respirators.
 - d. First Aid Kit.
 - e. Tyvek coverall (2 sets)
 - f. Eye protection
6. Measuring Devices:
 - a. 100' (or 30m) Measuring Tape.
 - b. Ruler.
 - c. Compass.
7. Lighting Devices:
 - a. Flashlight (heavy-duty and pocket size). Recommend Mini-Mag type due to brightness.
 - b. Chemical Light Sticks.
8. Miscellaneous Items:
 - a. Carrying case for investigation kit (rucksack or small suitcase).
 - b. Regulations and forms. AR 385-40, DA PAM 385-40, Accident Investigation Handbook, USASC Safety CDs.

- c. Unit pre-accident plan with current phone roster.
- d. Local crash map.
- e. Evidence tags, plastic bundle ties.
- f. Zip-lock bags (various sizes).
- g. Writing materials (paper, pens, pencils, chalk, markers).
- h. Engineer tape, string.
- i. Spare batteries.
- j. Fluid sample bottles.
- k. Parts cleaning brush.
- l. Magnifying glass.

The following items should be considered as valuable additions but not mandatory.

- 9. Cellular Telephone.
- 10. Global Positioning Satellite navigation device.
- 11. Inclinometer.
- 12. 35mm SLR Camera (disposable cameras are OK for back-up).
- 13. Aircraft parts manual.

Appendix G

Security, Marking, and Diagramming

Security of Accident Sites

1. Location : Will determine when and how you secure, mark and document.
2. Initial security:
 - a. Responsibility of first government representative on the scene.
 - b. Board will take custody as soon as they arrive on the scene.
3. Preaccident Plan (Field or Garrison)
 - a. Coordination with military
 - 1) Security
 - 2) Hospital
 - 3) Military Police
 - 4) USASC (h) AVIM
 - 5) Fire Dept.
 - 6) PAO
 - 7) Engineers
 - b. Coordination with civilian
 - 1) Local and State Police
 - 2) Local Medical
 - 3) Local Fire Departments
 - 4) Coroner
4. Security of the site and preservation of data:
 - a. Military Police
 - 1) Available initially
 - 2) Need supervision

- 3) Establish ground rules
- b. Civilian Police
 - 1) Available initially
 - 2) Need supervision
 - 3) Establish ground rules
 - 4) They cost money
 - 5) Need Authority
- c. Military Personnel (Unit)
 - 1) Require supervision
 - 2) Can be used for long periods
 - 3) Built in logistics
- d. Guard Instructions
 - 1) Protect property
 - 2) Prohibit the removal of bodies until properly identified by military authorities (@ 2 hrs)
 - 3) Keep spectators at a reasonable distance. Admit authorized personnel only
 - 4) Prevent disturbance of evidence
 - 5) Request for information from the press or others are referred to the PAO.

NOTE: By law county coroners may have jurisdiction over the bodies.
- e. Pass System for authorized personnel
 - 1) Rescue personnel (Fire Dept., Police, Medical)
 - 2) Accident Investigation Board
 - 3) Press
 - 4) Collateral Board
 - 5) Recovery Crew
 - 6) Anyone authorized by the Board President.
 - 7) Chain of command
- 5. Coordination
 - a. Personnel with which the Board President will coordinate with for the preservation of information and data.
 - 1) Chain of Command

- 2) Collateral Board
 - 3) Public Affairs Officer (PAO)
 - 4) Claims Officer
 - 5) Recovery Crew
 - 6) Guards
 - 7) Point of Contact
- b. Press: Refer all questions to the Public Affairs Officer. Avoid casual, idle, or innocent conversations. Do not antagonize them.
 - c. Minimize effects on unit mission and training
 - d. Classified Material: Inform security personnel (unit S-2, OPSEC Officer, etc.)
 - e. Private Property: Do not antagonize the owner, ensure the owner has the claims officer's name and phone number.
 - f. Recovery: Owning units responsibility, document recovery.
 - g. Site Safety: Location, Wreckage (fuel/blood), wildlife, ammo and composite material

Marking.

1. Purpose: To inventory the scene and establish site limits so as to preserve the evidence.
2. Marking the Area: May be enlarged beyond the aircraft and wreckage resting place. It should be clearly marked and should include the crash path and approaches. You must limit access to the area.
3. Marking the Site: Use flags, cones, tape.
4. Documenting the Scene: NOTE all tree, ground and other strikes made by the aircraft.
5. Marking Specimens: Do not alter or damage specimens. Mark or tag all parts. Get a control number from the USASC for suspect parts which you want to ship to Corpus Christy Army Depot (CCAD) (see para 2-5o, DA Pam 385-40).
6. Assistance.
 - a. Engineers
 - b. Military Police
 - c. EOD

- d. Troops
- e. Other (CCAD, USASC, etc.)

Diagramming.

1. Purpose: The diagrams can be used as analytical tools which can graphically recreate the accident, assist in reconstruction of aircraft, assist in inventory of missing pieces of the aircraft and possibly help determine location of these parts. The diagram can show attitude of the aircraft or flight sequence of events.
2. Diagram content, as appropriate.
 - a. First point of impact
 - b. Location of deceased or injured personnel
 - c. Location of witnesses
 - d. Path of aircraft
 - e. Engines, propellers, and major components
 - f. Scale, North point, Elevation, Wind
 - g. Caption (date, time, aircraft)
3. Types of Crash Diagrams
 - a. Grid: Used for small impact areas Most detailed and accurate of the two types. Used more by the board during the investigation.
 - b. Polar: Used more for the formal report.
 - 1) Used for crashes that cover a large area.
 - 2) Uses magnetic heading
 - 3) Can be made from photos
 - 4) Can include flight profiles
 - 5) Can include plan views
4. Assistance.
 - a. Engineers
 - b. Military Police

Appendix H

Electromagnetic Environmental Effects (E³) Checklist

1. E³, formally known as electromagnetic interference (EMI), is a recognized potential cause factor and should be thoroughly evaluated during all accident investigations to determine if E³ could or could not have influenced the operation of the equipment involved. If E³ could have been a factor, then it must be rigorously evaluated. E³ should be considered a potential cause factor for any air or ground system with electronic components, especially modern, complex systems.
2. The following E³ checklist is recommended for use whenever E³ is suspected as a cause factor. Use of a checklist will ensure a thorough evaluation of E³.

ELECTROMAGNETIC ENVIRONMENTAL EFFECTS CHECKLIST

1. During the initial stages of the investigation, attempt to determine if there is any evidence of an external influence on the aircraft/vehicle/weapon system or its subsystems. Consider cockpit/instrument indications reported by surviving crewmembers, eyewitness reports, and other physical evidence. This is especially important where the physical evidence indicates that the aircraft/vehicle/weapon system was out of control prior to accident sequence termination.
2. If E³ can be ruled out as a causal factor during this stage, then document the actions taken to eliminate E³. For aviation accidents, document this in paragraph 2j (Special Investigation) of the DA Form 2397-3 narrative (i.e., E³ was considered but ruled out for the following reasons:). For ground accidents, document this in the Narrative of DA Form 285, para 2I, Special Investigation.
3. If E³ cannot be eliminated early on or there are positive indications of an external influence, advise USASC Operations immediately at DSN 558-3410/2660, and request technical assistance. In addition, perform the following:

- a. Check for High Intensity Radio Transmission Areas (HIRTAs) in the area of the accident. Note VFR sectional or tactical map for large towers (transmitters) within 5 miles of the accident site.
- b. While taking aerial photographs of the accident site, recon the area surrounding the accident (5 miles) for large towers (transmitters) such as radio/television, telephone microwave, radar, etc.
 - 1) All towers (transmitters) are considered a potential source and should be plotted on a diagram in relation to the accident site.
 - 2) Contact owners of the towers (transmitters) to determine:
 - a) Hours of operation.
 - b) Nature of transmission(s) (signal power level and frequency).
 - c) Signal beam width.
 - d) Azimuth(s) of transmitter signal(s).
- c. For aviation accidents, gather any and all available ATC tapes, to include radar and voice, for later review.
- d. If there are surviving crewmembers, record all cockpit/instrument indications experienced during the accident (i.e., caution/warning/advisory light illumination, audio warning tones, and degradation/loss of flight controls, stiffness of pedals, etc.). Compare cockpit/instrument indications against the database of known type aircraft responses to E³.
- e. If there are no surviving crewmembers, analysis of the above data plus any additional information gained from flight data recorders (if so equipped) will indicate possible contribution to E³.
- f. Close coordination with Operations will be maintained throughout the E³ investigation. Aviation and/or Ground Systems and Accident Investigations will conduct detailed analysis of the above data at the USASC.
- g. E³ can be eliminated as a causal factor only if accident circumstances (physical evidence, aircraft/vehicle maintenance history, witness statements, etc.) indicate a failed part or human error was the primary cause.

Appendix I

Aviation Night Vision Device (NVD) Accident Reports

(Enter required data by marking with an "X" or check, or fill in the blank with Y=Yes, N=No, U or UNK=Unknown, or other appropriate answer.)

| GENERAL DATA | | | | | | | |
|--|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| CASE NUMBER: | | | | | | | |
| INDIVIDUAL COMPLETING FORM: | | | | | | | |
| AIRCRAFT DATA | | | | | | | |
| TYPE | | | | TAIL NUMBER | | | |
| WINDSCREEN CONDITION | | GOOD | <input type="checkbox"/> | MEDIUM | <input type="checkbox"/> | POOR | <input type="checkbox"/> |
| WINDOWS: | | CLOSED | <input type="checkbox"/> | OPEN | <input type="checkbox"/> | | |
| DOORS: | COCKPIT: | CLOSED | <input type="checkbox"/> | OPEN | <input type="checkbox"/> | REMOVED | <input type="checkbox"/> |
| | CABIN | CLOSED | <input type="checkbox"/> | OPEN | <input type="checkbox"/> | REMOVED | <input type="checkbox"/> |
| ENVIRONMENTAL DATA: | | | | | | | |
| MOON: | RISE | | | SET | | | |
| | % ILLUM | | | ANGLE | | | |
| HORIZON: | VISIBLE | <input type="checkbox"/> | OBSTRUCTED | | <input type="checkbox"/> | OTHER | <input type="checkbox"/> |
| VISIBILITY: | | | | MILES | | | |
| RESTRICTIONS | FOG | <input type="checkbox"/> | MIST | | <input type="checkbox"/> | | |
| | SMOKE | <input type="checkbox"/> | OTHER | | <input type="checkbox"/> | | |
| TEMPERATURE (Cent): | | | | | | | |
| DEWPOINT (Cent): | | | | | | | |
| HUMIDITY: | | | | | | | |
| DESCRIBE TERRAIN: | FLAT | <input type="checkbox"/> | ROLLING | <input type="checkbox"/> | MOUNTAINOUS | <input type="checkbox"/> | |
| BACKGROUND REFLECTANCE : | SAND | <input type="checkbox"/> | DIRT | <input type="checkbox"/> | GRASS | <input type="checkbox"/> | |
| | WATER | <input type="checkbox"/> | FOREST | <input type="checkbox"/> | | | |
| AREA: | REMOTE | <input type="checkbox"/> | POPULATED | <input type="checkbox"/> | ISOLATED | <input type="checkbox"/> | |
| | SPARSELY POPULATED | <input type="checkbox"/> | | | | | |
| NVD's | | | | | | | |
| | | | | PILOT | COPILOT | CREW CHIEF | |
| NVG (PVS-5,A,B,C; ANVIS, etc) | | | | | | | |
| TUBES, NEW OR REBUILT (SAAD) | | | | | | | |
| TIME ON TUBES (SINCE LAST INSPECTION) | | | | | | | |
| SERIAL NUMBER ON LEFT TUBE | | | | | | | |
| SERIAL NUMBER ON RIGHT TUBE | | | | | | | |
| SERIAL NUMBER OF NVD | | | | | | | |
| LAST INSP DATE OF NVD AND TYPE TEST SET USED (3895-UV, ALT-TP, HANDHELD) | | | | | | | |
| DATE OF LAST NITROGEN PURGE | | | | | | | |
| LEFT TUBE: | | | | | | | |
| RIGHT TUBE: | | | | | | | |
| RECORDS KEPT ON NVD's (Y/N) | | | | | | | |
| TYPE MOUNTING DEVICE (GX-5, GM-6) | | | | | | | |
| MODIFIED FACE PLATE | | | | | | | |
| TYPE STRAPS USED TO MOUNT NVD's (RUBBER,STRAPS,UNK) | | | | | | | |
| TYPE COUNTERWEIGHT (SOLID NONE, UNK) | | | | | | | |
| WEIGHT OF COUNTERWEIGHT IN OUNCES | | | | | | | |
| DID COUNTERWEIGHT BREAK AWAY? (Y/N/U) | | | | | | | |

| NVD's | | | | | | | | | | | | | |
|--|--|----------|-----------|---------------------------------------|--|----------|--|------------|----------|---------|--|------------|--|
| | | | | PILOT | | COPILOT | | CREW CHIEF | | | | | |
| DID COUNTERWEIGHT CONTRIBUTE TO INJURIES? (Y/N/U) | | | | | | | | | | | | | |
| DID NVD CAUSE OR CONTRIBUTE TO INJURIES? (Y/N/U) | | | | | | | | | | | | | |
| IF INJURIES OCCURRED, WERE THEY TO EYES/HEAD/FACE/OTHER? | | | | | | | | | | | | | |
| WERE ANY EYEGLASSES WORN? | | | | | | | | | | | | | |
| WHAT TYPE OF EYEGLASSES? (GLASS/PLASTIC/POLYCARBONATE) | | | | | | | | | | | | | |
| WAS LANYARD WORN AROUND NECK? (Y/N/U) | | | | | | | | | | | | | |
| WERE BATTERIES REFRIGERATED BETWEEN USE? (Y/N/U) | | | | | | | | | | | | | |
| INDICATE TYPE BATTERY PACK (DUAL, ARTIC ADAPTOR, TRIPLE) | | | | | | | | | | | | | |
| TYPE BATTERIES INSTALLED IN NVD OR BATTERY PACK (LITHIUM, MERCURY, ALKALINE) | | | | | | | | | | | | | |
| DID CREWMEMBER RECEIVE A LOW BATTERY PER INDICATION? (Y/N/U/NA) | | | | | | | | | | | | | |
| AUXILLARY LIGHTS | | | | | | | | | | | | | |
| NOTE: ENTER COLOR CODES | | | | | | | | | | | | | |
| G = GREEN | | | W = WHITE | | | R = RED | | | B = BLUE | | | Y = YELLOW | |
| | | | | PILOT | | COPILOT | | CREW CHIEF | | | | | |
| NONE: | | | | | | | | | | | | | |
| FINGER: | | | | | | | | | | | | | |
| LIP: | | | | | | | | | | | | | |
| WRIST: | | | | | | | | | | | | | |
| FLASHLIGHT: | | | | | | | | | | | | | |
| LIGHTING DATA | | | | | | | | | | | | | |
| FOR POSITION LIGHT: | | | | ENTER S (STEADY), F (FLASH) | | | | | | | | | |
| FOR ANTICOLLISION LIGHT: | | | | ENTER R (RED), W (WHITE), ST (STROBE) | | | | | | | | | |
| EXTERNAL: COMPLETED FOR LIGHTS ON. (CHECK AS APPROPRIATE OR ENTER DATA.) | | | | | | | | | | | | | |
| POSITION/NAVIGATION: | | BRIGHT | | | | DIM | | | | UNK | | | |
| ANTICOLLISION LIGHTS: | | TOP | | | | BOTTOM | | | | SIDES | | UNK | |
| INFRARED POSITION LIGHTS: | | | | BRIGHT | | | | DIM | | | | UNK | |
| FORMATION LIGHTS: | | ON | | 1 | | 2 | | 3 | | 4 | | 5 | |
| LANDING LIGHT: | | INFRARED | | | | VISIBLE | | | | WATTAGE | | | |
| | | POSITION | | | | RHEOSTAT | | | | | | | |
| SEARCHLIGHT: | | INFRARED | | | | VISIBLE | | | | WATTAGE | | | |
| | | POSITION | | | | RHEOSTAT | | | | | | | |
| BEAM WIDTH IN DEGREES: | | | | | | | | | | | | | |
| LANDING LIGHT/SEARCHLIGHT: FOR POSITION, SPECIFY ANGLE REARWARD (R) OR FORWARD (F) IN RELATION TO VERTICAL AND AZIMUTH; LEFT (L) OR RIGHT (R) OF NOSE (10F/10R). IF LIGHT IS ON CENTERLINE OF NOSE, USE (C) FOR AZIMUTH; E.G., 90R/C (LANDING LIGHT IS STOWED AND ON CENTERLINE) | | | | | | | | | | | | | |

| NVG MODIFICATIONS | | | | | | |
|---------------------------------------|--|------------|--------------------------|--------------------------|--------------------------|--------------------------|
| YES | <input type="checkbox"/> | MWO | 1 | <input type="checkbox"/> | 2 | <input type="checkbox"/> |
| NO | <input type="checkbox"/> | | 3 | <input type="checkbox"/> | 4 | <input type="checkbox"/> |
| RED-LIGHTED COMPONENTS: | | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> | |
| TYPE: | | | COLOR | | | |
| 1 | EYEBROW | | W | WHITE | | |
| 2 | DIMPLE | | R | RED | | |
| 3 | FLOOD | | B | BLUE | | |
| 4 | BEZEL | | Y | YELLOW | | |
| 5 | INTERNAL | | G | GREEN | | |
| 6 | SUPPLEMENTAL | | | | | |
| NOTE : | CHECK OFF OR ON ENTER CODES FOR TYPE AND COLOR | | | | | |
| | | OFF | ON | TYPE | COLOR | |
| PANEL LIGHTS/CONSOLE/OVERHEAD : | | | | | | |
| AVIONICS LIGHTS: | | | | | | |
| INSTRUMENT LIGHTS: | | | | | | |
| MAP LIGHT/UTILITY: | | | | | | |
| CAUTION/WARNING LIGHTS: | | | | | | |
| NOTE : | IF NEEDED, PUT COMMENT ON DA FORM 2397-3. | | | | | |
| REMARKS | | | | | | |

Appendix J

Driver Training Checklist

| | | |
|--|---|--------------------------|
| Instructions. Complete for each driver of vehicle(s) involved in the accident and for review of the unit's driver training program IAW AR 600-55. | | |
| Review individual's DA Form 348-E and OF 346 for validity and currency (Use AR 600-55 and FM 55-30 for instructions/ maintenance of these forms.) Place comments on the back of this form. | | |
| NOTE: Include COPY of OF 346 and DA Form 348-E on the left side of the report. Soldiers undergoing driver training or equipment operator training must be in possession of a learner's permit for that piece of equipment. | | |
| Review adequacy of unit's driver training program (required at battalion level or above). Use AR 385-55, AR 600-55, FM 55-30, FM 21-17, TC 21-305 for wheeled vehicles and TC 21-306 for tracked vehicles and equipment as a guide. Place comments on the back of this form. | | |
| Length of time assigned to unit: | | months |
| Duty position: | | |
| Military driving experience: | Estimate total military miles/hours driven per vehicle | |
| Accident vehicle | | |
| Wheeled vehicles: | | |
| All tractors | | |
| Buses | | |
| Sedans/vans | | |
| Trucks (less than 2 1/2 ton) | | |
| Trucks (over 2 1/2 ton) | | |
| Tracked vehicles | | |
| | Yes | No |
| Has the individual been involved in mishaps previously? | <input type="checkbox"/> | <input type="checkbox"/> |
| If so, has the individual received remedial training? | <input type="checkbox"/> | <input type="checkbox"/> |

| | | Yes | No |
|---|---|--------------------------|------------------------------------|
| Was individual licensed during AIT and on what type of vehicle? | | <input type="checkbox"/> | <input type="checkbox"/> |
| Has individual ever received classroom instruction on accident avoidance IAW para B-4, AR 385-55? | | <input type="checkbox"/> | <input type="checkbox"/> |
| Length of time since annual refresher training on accident vehicle? | | | months |
| The following questions pertain to the individual's local driver selection/testing/training procedures. | | Yes | No |
| a. | Was there a commander's interview? | <input type="checkbox"/> | <input type="checkbox"/> |
| b. | Did the individual have a private vehicle license? | <input type="checkbox"/> | <input type="checkbox"/> |
| c. | Did procedures include a road test and on what type of surface? | <input type="checkbox"/> | <input type="checkbox"/> |
| d. | On the accident vehicle? | <input type="checkbox"/> | <input type="checkbox"/> |
| f. | Did procedures include operation of auxiliary equipment on accident vehicle? | <input type="checkbox"/> | <input type="checkbox"/> |
| f. | Did procedures include emphasis on use of seatbelts? | <input type="checkbox"/> | <input type="checkbox"/> |
| g. | Did procedures cover contributory (this accident) factors? | <input type="checkbox"/> | <input type="checkbox"/> |
| h. | Is the local program contracted out? | <input type="checkbox"/> | <input type="checkbox"/> |
| i. | List qualifications/standards required of the local program supervisor/administrator (include MOS and grade of individual currently assigned) | <input type="checkbox"/> | <input type="checkbox"/> |
| j. | Are local procedures actually being followed? | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Battalion | Brigade Installation |
| k. | At what level is the local program being conducted? | <input type="checkbox"/> | <input type="checkbox"/> |
| | | Yes | No |
| Were NVGs being utilized? (If yes, utilize the attached NVG checklist). | | <input type="checkbox"/> | <input type="checkbox"/> |
| Is there a NVG driver training program? | | <input type="checkbox"/> | <input type="checkbox"/> |
| Remarks. | | | |

Appendix K

Witness Information Brief

(Ref: AR 385-40, para 1-7; DA Pam 485-40, para 2-3)

1. It shall be the policy of the U.S. Army Safety Center to comply with the standards for promises of confidentiality that are contained in AR 385-40 and DA PAM 385-40.
2. The following guidance will be used in order to maintain standardization and ensure that all personnel interviewed understand the purpose of the investigation, how information derived from the witness will be used, who will have access to the information, and the DOD regulations concerning use of the information provided.
 - a. The board president or recorder will brief each witness concerning the interview. He will read the WITNESS INFORMATION INSTRUCTIONS on DA FORM 2397-4/285-W-R for all witness interviews for "General Use" and "Limited Use" investigations.
 - b. In "Limited Use" investigations, a promise of confidentiality may be offered to a witness when it has been determined necessary by the board in order to obtain information necessary to the investigation. When a promise of confidentiality is offered, the board president or recorder will read the WITNESS INFORMATION INSTRUCTIONS, and will have the witness indicate his or her choice regarding confidentiality on the DA Form 2397-4/285-W-R. Confidentiality will routinely be offered to the following witnesses:
 - 1) Accident aircraft crew members (PC, PI, crew chief)
 - 2) Technical inspectors, maintenance pilot, maintenance personnel
 - 3) Accident vehicle crewmembers (drivers, TCs, loaders, gunners, observers) only when the accident report has been designated by the Commander, USASC, as a "Limited Use" Safety Accident Report.

Confidentiality may be offered under the “Limited Use” stipulation to any witness who may have direct impact on determining the cause of the accident, when deemed necessary by the Board President. If he determines that a promise of confidentiality is necessary in the conduct of the investigation, he must first obtain permission from the Commander, USASC, to designate the report “limited use.”

- c. All information obtained through enhanced recall/hypnosis will automatically be treated and designated as confidential.

Appendix L

Legal Aspects of Accident Investigation

Accident site:

1. The Posse Comitatus Act (18 USC Section 1385). This law was passed after the Civil War. During the aftermath of the war federal troops were used to enforce civil law. The Posse Comitatus Act (PCA) recognized that law enforcement within the jurisdictional boundaries of a state is the states responsibility. The PCA prohibits federal troops from enforcing civil law The Army reference for PCA is DA PAM 27-21 (para 3-7).
2. The DA PAM requires that an officer be in charge (OIC) of the site. The OIC is either the Safety officer or the board president. He or she will (via a Commander) effect security of the site. Normally this will involve the use of federal troops (e.g. unit members). The OIC exercises OPCON of troops to execute the security mission.
3. Off post issues of jurisdiction are the most likely situations that may present problems with security and Posse Comitatus. The key to success when off post or when civil authorities are present is to have coordinated security efforts with the local civil law enforcement authorities, and to have them readily available to assist.
4. Content and purpose of the law: Case law interpreting the PCA, distinguishes between ‘active’ and ‘passive’ law enforcement assistance to civil authorities (AR 500-51, paragraph 2-1d).
 - a. Prohibited ‘active’ assistance includes things like search and seizure, arrest, and similar type activities.
 - b. Passive’ assistance can be provided, such as sharing information collected in the normal course of military operations, and making available the use equipment/facilities.
5. Exceptions to the Act.
 - a. Categories of persons to whom the PCA does not apply:

- 1) Off-duty and in a private capacity and not in direct control, or suggestion of DOD authorities.
 - 2) Civilian employees (unless they are acting under direct command and control of a military officer)
 - 3) Reservists 'when not on active duty or active duty for training.'
 - 4) National Guard 'when not in federal service' (AR 500-51, paragraph 3-2(a) and (b).)
 - 5) Coast Guard when not a service of the Navy.
- b. Actions taken for furthering a military or foreign affairs function of the United States, regardless of incidental benefit to civilian authorities.
- 1) Exercise of the commander's inherent authority to maintain law and order on a military installation or facility.
 - 2) Protection of classified military information or equipment.
 - 3) Protection of DOD personnel, DOD equipment, and official guests of DOD.

NOTE: OICs always retain authority to act when civil authorities are unable or unwilling to do so. Do not arrest or take into custody. Detain and turn the person over to civil authorities ASAP.

6. Relationships with PAO.

- a. **Rule 1;** Refer the Media to PAO. Consistent with national security, military authorities will give maximum cooperation to U.S. news representatives covering military accidents occurring outside military installations. If the PAO isn't available 'the local safety representative may have to handle press relations at the accident scene.' Explain that the accident investigation has just begun and that it is impossible to make statements with incomplete information.
- b. **Rule 2:** On-post accidents: AR 385-40. Don't prevent access to the accident site in areas normally open to the public; don't tell a reporter what to write; or what to photograph; or restrict him from interviewing civilian witnesses. Military witnesses should be cautioned against making statements, expressing opinions, or giving out information concerning the accident. Should classified material be present, all news media personnel will be restricted from the site until such time as those materials have been secured. No photographs until classified material is taken care of.

NOTE: U.S. news media representatives may visit those areas of an installation normally open to the public.

- c. **Rule 3;** Off-post accidents: Coordinate with civil authorities for protection of the site. Make the civilian law enforcement agencies aware of the provisions of IS USC 793d, 793e, and 797 that 'penalize photographing, publishing, or refusing to surrender classified information.'

Autopsy:

1. Military air crewmembers: Autopsy is mandatory. AR 40-21. Consent of the next of kin is not required.
2. Other cases: DODI 6010.16, Paragraph D3 authorizes the Armed Forces Medical Examiner (AFME) to order an autopsy on any active duty soldier or reservist on active duty for training, where the Federal Government has exclusive jurisdictional authority and where the circumstances surrounding the death are suspicious, unexpected, or unexplained.' Consent of the next of kin is not required. Commanders of Military Treatment Facilities may authorize an autopsy when it is considered necessary to determine the true cause of death or to secure information for the completion of military records.
3. AR 40-57, paragraph 1-5, provides that the AFME 'will be notified expeditiously by the casualty branch, safety center, or investigative agency of the death of any service member on active duty or active duty for training.'
4. Deaths off-post: Where there is no exclusive Federal jurisdiction the AFME must seek the applicable assistance and cooperation of the local authorities.
 - a. Autopsy is governed by the applicable local laws.
 - b. The local coroner/medical examiner, has jurisdiction on removal of the bodies. Therefore, his permission is required before the military removes the bodies. See AR 40-2, paragraph 4-4c; AR 40-57, paragraph 1-5d.
 - c. AR 600-8-1, paragraph 24-5a, similarly states that approval of civil authorities will be obtained before moving remains from scene of death when death occurs at a place other than on a military installation or reservation.

Accident investigation reports;

1. Collateral reports: The collateral is sometimes also called the 'legal mishap' investigation or the 'JAG investigation report.'

- a. Per DODI 6055.7 and AR 385-40 'the collateral is used to obtain and preserve all available evidence for use in litigation, claims, disciplinary action, or adverse administrative actions.'
- b. A collateral is required for:
 - 1) *Class A* mishaps (limited use)
 - 2) As directed by Staff Judge Advocate or legal counsel.
 - 3) Anticipated litigation for or against the Government or a Government contractor.
 - 4) Probable high public interest,
- c. Collateral investigations are conducted independently and apart from the accident investigation; they are appointed and conducted by local commands as required by DODI 6055.7 and AR 385-40, and use procedures in AR 15-6 and AR 27-20.
 - 1) Collaterals provide evidence, findings and recommendations for all purposes other than safety.
 - 2) Collaterals can accomplish line of duty, report of survey and other adverse administrative purposes.
- d. Safety personnel shall not conduct, review, evaluate, or maintain on file the collateral investigation.

NOTE: A result of the separateness between these investigations is that the same person cannot do both. Were that to happen, it would jeopardize the independent function of the safety investigator and the safety findings.

- e. Factual, non-privileged, portions of the safety investigation (teardown analysis, lists of witnesses, photographs) can be provided to the collateral and other investigators. This does not include privileged portions such as: findings, analysis and recommendations of the accident investigation report or *witness* interviews. This material is used solely for accident prevention purposes and may not be used with in DOD to support disciplinary actions or for other purposes.
- 2. Limited use accident investigation reports:
 - a. Limited use reports are "close hold, internal communications of the Department of Defense whose SOLE purpose is prevention of subsequent DOD mishaps."
 - 1) Required for all in-flight mishaps.
 - 2) May be used in cases involving complex weapons systems (including such things as ships and shipboard systems, missiles, lasers, and armored vehicles).

- 3) May also be used for 'military-unique' systems, equipment, operations or workplaces. *This* will enable us to use limited use procedures in more of our ground accidents, giving us more discretion in terms of what is 'military unique.' See definition of military unique in glossary to AR 385-10.
 - b. Limited use procedures employ a promise of confidentiality for certain witnesses, primarily aircrew members. The investigator assures the witness that any statement will be used within the military exclusively for safety, and not be used for any other purpose, to include disciplinary action.
 - c. As the DODI states: 'To the extent permissible under the law, these privileged reports shall not be released in their entirety to the public or any Federal agency.'
3. Limited use procedures – promises of confidentiality:
- a. When do you offer it? A promise of confidentiality is a tool to obtain information from a witness who may be reluctant to offer information, or who is being less than candid.
 - b. To whom do you offer it?
 - 1) Routinely offer it to those directly involved in a mishap, (aircraft or other vehicle crewmembers, maintenance pilot/personnel and technical inspectors) and those who provide enhanced recall testimony.
 - 2) An accident investigator may offer it to other witnesses reluctant to testify without it.
 - 3) The safety report will contain evidence that the promise was offered, and whether or not it was accepted. DA PAM 385-40 contains standard witness statement form to be used in interviewing all witnesses (DA Form 2397-4 for aviation and DA Form 285-W-R for ground.

NOTE: DODI 6055.7 points out that 'all persons who provide information mishap investigators under a promise of confidentiality may be ensured that the Department of Defense will use its best efforts to honor the promise if the record containing the information becomes the subject of a request under the Freedom of Information Act and will not voluntarily disclose this information.' This information (along with board findings, analysis and recommendations) is privileged.

4. General use reports.
 - a. What are they? Reports generated to investigate accidents or mishaps where limited use procedures do not apply. The 'primary' purpose of these reports is to prevent future mishaps.
 - b. The DODI permits the services to use them for other purposes.
 - 1) AR 385-40 forbids their use within DOD for administrative or disciplinary actions.
 - 2) Releasable within DOD to those having a need-to-know for accident prevention purposes. FOIA requires outside DOD release of non-privileged portions.
 - 3) Confidentiality may not be offered to witnesses here, and witness interviews are publicly releasable under the Freedom of Information Act (FOIA).

Privileged, Sensitive and Factual Information

1. What is 'privilege' (i.e. not releasable) safety information?
 - a. Findings, analysis and recommendations (the deliberative process) of the safety board.
 - b. Since the objective of all safety reports is candid/frank conclusion (regardless of who/what gets the blame), all 'deliberative' functions of the board are protected or privileged'.
 - c. Statements given under promise of confidentiality (limited use investigations)
2. b. What is releasable within DOD?
 - a. Safety (accident, prevention) purposes: Everything with a warning,
 - b. Non-safety purposes: Nothing except for factual information (photo, witness list, teardown analysis, etc.)
3. What is releasable outside DOD? Factual, non-privileged information.
4. How is release made outside DOD?
 - a. **FOIA** – Taxpayers may request release in writing citing the FOIA Their request must reasonably describe the records desired; and express a willingness to pay any fees for search and reproduction.
 - b. The United Army Safety Center (USASC) is the Initial Denial Authority (IDA) for release of accident reports. The FOIA coordinator at the USASC is the Command Judge Advocate

office. This office makes release determinations using the FOIA exemptions (9 exemptions). The USASC is the release authority for information on all Class A, Class B, and Class C accidents. FOIA coordinators at installations will act on Class D reports.

- c. The deliberative process (findings and recommendations) on Class D reports will be protected by the installation. Denial of this information must be coordinated with the USASC.
 - d. Safety investigation boards may make releases on the scene to collateral officers using the above rules. Only factual data may be released (no witness statements).
5. What is FOIA designed to do? It allows individual members of the public access to documents / records concerning the activities of the government.
- a. It is a release Statute: We must release unless an of the exemptions apply:
 - 1) Classified records
 - 2) Law enforcement records (if release would jeopardize an investigation or reveal a confidential source).
 - 3) Commercial trade secrets.
 - 4) Information that, if released, would cause an unwarranted invasion of personal privacy.
 - b. Exemption 5 is called the deliberative process exemption that is used by the USASC to with hold the privileged portions of the accidents reports and subjective evaluations, as contrasted with factual matters. It protects the decision-making process.

NOTE: This exemption applies to limited use and general use reports. It protects deliberations, findings, conclusions, speculations and analysis by the accident investigation board and its members, as well as recommendations regarding actions to be taken.
6. Court decisions applying the FOIA exemptions to accident investigation reports.
- a. United States v. Weber Aircraft Corp., 465 U.S. 792 (1984).
 - b. Machin v. Zuckert, 316 F.2d 336 (D.C. Cip. 1963)
 - c. U.S. v. Reynolds, 345 U.S@ 1 (1953).
 - d. Rabbitt v. Department of the Air Force, 401 F.Supp. 1206 (S.D. N.Y. 1974).

- e. *Badhwar v. United States Department of the Air Force*, B29 F.2d 182 (D.C. Cir. 1987).
- f. *Cooper v. Department of the Navy*, 558 F.2d 274 (5th Cir. 1977).

Relationship

- 1. AR 385-40 states that the safety board ‘bag priority over the collateral investigation.’ A similar provision is in DA PAM 385-40: Accident and criminal investigations take priority over collateral investigations for purposes of access to evidence, witnesses, and the accident scene; however, a spirit of cooperation is also required to ensure that the collateral board will have equal access to the evidence. A pending revision to DODI 6055.7 will also reflect this, stating that the safety investigation will have priority over all other investigations.
- 2. Relationships with criminal investigators are discussed in DA PAM 385-40. The DA PAM states that contact with the local criminal investigation division (CID) office should be made as soon as practical. AR 385-40, paragraph 4-5 states that prior to arrival of the safety board, ‘MP/CID personnel should remove only those items of evidence which would be destroyed by time or the elements.’
 - a. The safety board ‘is responsible for ensuring that no member of the board takes any action that would destroy the evidence or would compromise the legal chain of custody of those items.’ Paragraph 4-7 states ‘The accident investigation board will have access to all evidence, photographs, and witness statements collected by MP/CID investigators.’
 - b. If the evidence indicates that the accident ‘was the result of criminal intent (other than negligence, dereliction of duty, or disobedience of an order), ‘then we really don’t have an accident.’ Mishaps resulting from criminal intent are just that; crimes. In such situations, ‘the criminal investigation takes priority over all other investigations.’ The accident investigation in such a situation will be discontinued, since what is being investigated is really not an accident.

Witness Interviewing

- 1. Article 31, UCMJ/Miranda warnings: There is no requirement to advise witnesses of their rights under Article 31, UCMJ/Miranda during an accident investigation. The safety investigation interviews are non-adversarial and must remain non-threatening to the witnesses.

In this context, warnings regarding the right against self-incrimination wouldn't make any sense; indeed, part of the Article 31 warning is 'that any statement may be used as evidence against him in a trial by court-martial.' In the context of an accident investigation, this advice would be untrue and completely inconsistent with advice that the investigation is solely for accident prevention.

2. The Jencks Act (18 USC Section 3500): Should witness interviews be sworn and verbatim?
 - a. The Jencks Act, 18 U.S. Code Section 3500, grants a statutory right of access to witness statements after a witness has testified on direct examination for the Government. The defense then may move for production of any other statements of the witness.
 - b. This statute defines a statement as follows: (1) A written statement made by said witness and signed or otherwise adopted or approved by him; (2) A stenographic, mechanical, electrical, or other recording, or a transcription thereof, which is a substantially verbatim recital of an oral statement made by said witness and recorded contemporaneously with the making of such oral statement. 'Witness interviews can be Jencks Act statements,' but this would be true 'only if the witness has signed or otherwise adopted or approved' the statement (U.S. v. Newman, 849 F.2d 156 (5th Cir. 1988).) The determination depends on a finding that the summary was, signed or otherwise adopted or approved by the witness.' The evidence must show that the interviewer read the statement back to the witness and that the witness approved the statement' US v. Gonzalez-Sanchez, 825 F.2d 572 (1st Cir. 1987).
 - c. DA Pam 385-40, states that witness interviews should not be verbatim, sworn statements of the interviews. They should be summarized for inclusion in the report. The complete, verbatim account of all that was stated should not be included.

NOTE: Witnesses should not be asked to sign or agree to a formal statement, the accident investigators need to summarize key points in witness interviews into a third person account of the facts. All notes, tapes, hand written statements must be destroyed.

Responses to Subpoenas:

1. AR 385-40, paragraph 1-11, states: "Subpoenas for the production of accident reports or for the testimony of accident investigators ill be referred to the recipient's legal advisor or SJA for action required by AR 27-40." The Department of the Army's policy

toward this area is reflected in a Policy Letter dated 27 July 1984, from the Litigation Division, Office of the Judge Advocate General of the Army, to the U.S. Army Safety Center: Safety investigation board members will not be made available for matters pertaining to litigation.

2. The same is true for requests to take the depositions of accident investigation board members in questioning them about their reports. It would be virtually impossible to preclude inquiry into matters such as their opinions, conclusions, comments, findings, speculations and recommendations. If such questioning were allowed, we would be enabling the requester to obtain indirectly what it could not get directly; access to the privileged portions of the safety report.
3. In terms of private litigation in which the U.S. has no interest, there is a further rule regarding the provision of expert testimony: 'DA maintains strict impartiality. At present military personnel or civilian employees will not provide, with or without compensation, opinion or expert testimony in private litigation or in litigation in which the United States has an interest for a party other than the United States without the prior approval of HQDA' (AR 27-40, paragraph 7-10a).

Appendix M

Medical Aspects of Accident Investigation

Requirements and Responsibilities:

1. Flight Surgeon is required:
 - a. All Class A and B aircraft accidents.
 - b. Class C aircraft accidents when injuries are sustained or psychological, physiological, or pathological factors are suspected.
 - c. Role of DOD Flight Surgeon.
2. Responsibilities:
 - a. Assisting in the human factors portion of the investigation.
 - b. Conducting the accident survival, emergency egress, and survival/rescue portion of the investigation.
 - c. Thoroughly assessing fatal and non-fatal injuries.
 - d. Correlating human factor issues with material and environmental issues.
 - e. Evaluating the aviation life support equipment as it correlates to injury or the prevention of injury.
 - f. Coordination of collection of appropriate pathological specimens.
 - g. Completing the human factors requirements of the technical report (DA Form 2397 series).

Post-accident Responsibilities:

1. Initial response to notification, determine:
 - a. Status and number of occupants.
 - b. Type of aircraft.
 - c. Location of aircraft.
 - d. Type of mission, armament, and weapons onboard.

2. At the Crash site:
 - a. Make sure the area is safe.
 - b. Triage, treatment, and evacuation of casualties.
 - c. Confirm and declare dead victims.
 - 1) Document posture and position.
 - 2) Account for all body parts and personal equipment.
 - 3) Confirm jurisdiction prior to moving.
 - d. Disturb wreckage as little as possible
 - e. Keep your hands in your pocket for first walk through
 - f. Determine & document status of ALSE.
 - g. Document time of day, weather, terrain
 - h. Do not remove personal equipment before photography.
 - i. Supervise recovery of bodies and accompany to medical facility.
 - j. Specimen collection of fatalities should occur at time of autopsy.
3. At the Medical Facility:
 - a. Evaluate survivors, ensure specimen collection.
 - b. Secure medical and dental records and all flight equipment of survivors and fatalities.
 - c. Assist Radiologist with full body X-ray of fatalities.
 - d. Complete DA Form 3894- Hospital report of death: Time of Death /Cause of death. (estimate)
4. Other post-accident responsibilities:
 - a. Meet with arriving board members.
 - b. Meet with Armed Forces Institute for Pathology (AFIP) pathologist.
 - c. Attend/assist with autopsies.
 - d. Ship appropriate ALSE to United States Army Aeromedical Research Laboratory (USAARL).
 - e. After autopsy, ensure release of body to the next-of-kin.
 - f. Consult Safety Center Surgeon as needed.

Specimen collection (survivor):

1. Toxicology Specimens are required for all Class A, B, and C aircraft accidents.
2. Collection point: Local medical facility.
3. Time of collection: Immediately following accident (up to 3 days).
4. Toxicological analysis: Done by AFIP.
5. General Guidelines
 - a. Skin prep: Betadine or soap/water (not alcohol).
 - b. IAW AR 600-85: Chain-of-custody collection.
 - c. Fill out appropriate forms: DD Form 1323 / SF Form 543
 - d. The specimens are tested for the following drugs:
Amphetamines, Antidepressants, Antihistamines, Barbiturates, Cocaine, Phencyclidine, Ethanol, Cannabinoids, Carbon Monoxide, Benzodiazepines, Nicotine, Phenothiazine, Salicylates, Narcotic / Analgesics, Acetaminophen, NSAIDs, Sympathomimetic, Diuretics, Neuroleptic, Morphine
6. General Comments:
 - a. Some substances may be missed due to short half-life, limited tissue distribution.
 - b. Specific drug testing: Use DD Form 1323.
 - c. Label, pack, and address specimen IAW AFIP procedural guidelines.

Autopsy:

1. AR 40-21: Requires autopsy for Army aircrew fatalities. The AFIP will conduct the autopsy whenever possible. The board flight surgeon will assist the pathologist.
2. Issues of jurisdiction.
 - a. AFIP will not launch a team until jurisdiction is determined.
 - b. Army exclusive jurisdiction: Accident occurs on property with exclusive federal control. Armed Forces Medical Examiner (AFME) has authority to order autopsy. Most accidents involve concurrent jurisdiction.
 - c. If jurisdiction is concurrent or exclusively civilian, then the coroner or medical examiner may:
 - 1) Retain jurisdiction and perform the autopsy.

- 2) Retain jurisdiction and request that an AFME perform autopsy under his supervision.
 - 3) Waive jurisdiction to the Army.
 - 4) Retain jurisdiction and not perform the autopsy. Release body to the next-of-kin.
3. AFIP autopsy:
 - a. If possible, the AFIP team will visit the accident site prior to the autopsy in order to assist in the correlation of injury patterns, aircraft surfaces, and damage.
 - b. Prior to departure, AFIP team will provide the Flight Surgeon with preliminary autopsy protocol which includes: statement of injuries, evidence for identification.
4. Objectives of the autopsy:
 - a. Identify the dead.
 - 1) Positive identification of victims: fingerprints, footprints, dental records, DNA typing.
 - 2) Presumptive Identification: visual, personal effects, ID tags, physical characteristics, radiography, flight manifest
 - b. Identify the cause of death.
 - c. Identify the manner of death.
 - d. Identify the nature and sequence of traumatic events.
 - e. Identify specific interactions between the victim, aircraft structure, or components resulting in the sustained injuries.
 - f. Estimate crash survivability.
 - g. Identify post impact injuries and attributable causes.
 - h. Determine who was on the controls.
 - i. Identify physiological or medical cause factors.
 - j. Objectives help to determine what modifications of aircraft or equipment might enhance survival.
5. Autopsy issues:
 - a. Finding of body parts late in the investigation requires calling AFIP. If it is pertinent to the findings, AFIP will direct what to do. If it is not pertinent to findings, it will be disposed locally.
 - b. Following completion of AFIP autopsy, prompt release of remains to next-of-kin is important.

6. Autopsy without AFIP. The Flight Surgeon must coordinate with local pathologist or medical examiner. Several specimens must be sent to AFIP. The collection, preservation, packaging, and shipment of specimens will be IAW AFIP procedural guidelines. The following specimens are required:

| Tissue | Volume | Tissue | Volume |
|-----------------|---------------|------------------|--------------------------|
| Blood | 25-50ml | Urine | 100ml (no preservatives) |
| Vitreous | All Available | Liver | 500gm |
| Brain | 100-200gm | Kidney | 50gm |
| Lung | 200-300gm | Stomach Contents | 100-500ml |
| Skeletal muscle | 200-300gm | Fat | 200gm |
| Bile | All Available | | |

7. Photography-Autopsy: The photos will be done by AFIP or medical photographer. They will include: all views both before and after equipment / clothes removal, close up of injuries, anomalies, other findings. Photocopies of each radiograph will also be made.

NOTE: Autopsy photos are considered privileged:

Considerations of survivability:

1. Surviving an aircraft crash involves four factors.
 - a. Ability to tolerate deceleration forces.
 - b. Maintaining sufficient volume of occupiable space.
 - c. Non-lethal post crash environment.
 - d. Time to definitive medical care.
2. CREEP: The CREEP concept provides another way to organize all of the aspects that go into crash survival:
 - C** Container
 - R** Restraints
 - E** Environment
 - E** Energy Absorption
 - P** Post Factors
 - a. Container and Survivability: The aircraft structure must maintain integrity. There must be the preservation of an adequate volume of living space. The container should prevent penetration by objects during the crash sequence. Modern helicopter design provides good container survivability when

- the aircraft remains upright. However, there is little protection during rollover.
- b. Restraints: It is critical that occupants be securely restrained. Failure results in a higher probability of injury.
 - c. Environment: Was there contact with various surfaces/objects in the aircraft? Were there loose items which become missiles. Was rapid egress hampered.
 - d. Energy Absorption: Relates to: attenuation of the crash forces transmitted to the occupants and the use of energy absorbing materials and designs of airframe and seats.
 - e. Postcrash Factors: The effects of fire, toxic fumes, poor communication, remote locations, and inadequate training can adversely affect survival. Any delay in rescue and time to definitive care can result in major injuries becoming fatal injuries.
3. Impact tolerance: The definition of a survivable accident is: the impact conditions are within human tolerance. Human tolerance depends on:
- a. Magnitude of accelerating force.
 - b. Duration of accelerating force.
 - c. Rate of onset of the accelerating force.
 - d. Direction in which the acceleration is applied to the body
 - e. Manner in which the occupant's body is supported during the acceleration.
 - f. The following estimates can be used to determine the probability of survival:
 - 1) SURVIVAL UNLIKELY-Human Tolerance Limits exceeded by 2X.
 - 2) SURVIVAL DOUBTFUL- Human Tolerance Limits exceeded by 1.5X
 - 3) SURVIVAL PROBABLE-Human Tolerance Limits exceeded by 1.25X
 - 4) SURVIVAL EXPECTED-Human Tolerance Limits not exceeded.
4. Whole body Impact Tolerance Limits:
- a. (eyeballs out) -Gx 45 G over 0.1 sec 25 G over 0.2 sec
 - b. (eyeballs in) +Gx 45 G over 0.1 sec 83 G over 0.04 sec
 - c. (eyeballs up) -Gz 15 G over 0.1 sec

- d. (eyeballs down) +Gz 25 G over 0.1 sec
 - e. (eyeballs right/left) +Gz 25 G over 0.1 sec
 - f. (eyeballs right/left) Gy 11.5-20 G over 0.1 sec
5. Deceleration Forces for Specific Injuries:
- a. Maxilla Fracture 50 G
 - b. Total Body Transection >350 G
 - c. Nose Fracture 30 G
 - d. Mandible Fx 50 G
 - e. Pelvic Fracture 100-200 G
 - f. Concussion 60 G over 0.02 100 G over 0.005 180 G over 0.002
 - g. Vertebral Compression 20-30 G
 - h. Aorta Tear 50 G
 - i. Vertebral Body Transection 200-300 G
 - j. Pulmonary Contusion 25 G
 - k. Fx Dislocation C1/C2 20-40 G
 - l. Aorta Transection 80-100 G
6. Aviation Life Support Equipment (ALSE) Evaluation: AR 40-21 requires the Flight Surgeon to correlate the factors causing the accident with the injuries, system design, personal equipment, and regulations. The objective is the prevention of injuries.
- NOTE:** ALSE suspected to have caused or contributed to the severity of injury will be sent to USAARL. ALSE which prevented injury should also be sent.

Witness interviews:

- 1. Flight Surgeon will conduct/assist with interviews of injured or hospitalized witnesses. Inpatient interviews need to be coordinated with the attending physician and the medical facility.
 - a. Timeliness, though desired, is not an overriding requirement.
 - b. Prepare pertinent questions in advance.
 - c. Consider 2-3 short interviews vs one long.
- 2. Enhanced recall:
 - a. Individual must be willing to participate.
 - b. Specific details can be obtained regarding instrumentation.

- c. The individual will remember all that is recalled.
- d. Enhanced Recall confirms details, it does not determine the entire scenario and cause of the accident.

NOTE: As a Accident Investigation Board Member, the Flight Surgeon has responsibility for providing data and completing several of the DA Form 2397-R series: DA Form 2397-3-R (Narrative), DA Form 2397-8-R (Personal Data), DA Form 2397-9-R (Injury/Occupational) DA Form 2397R: Personal Protective/escape/etc.

Appendix N

Bloodborne Pathogens

General Information

General Information (Part 1910.1030 & DA Pam 385-40).

1. Universal precautions. This method of infectious control requires the employer and employee to assume that **all** human blood and specified human body fluids are infectious for HIV, HBV and other bloodborne pathogens.
2. Infectious materials:
 - a. Blood means human blood, blood products or blood components.
 - b. Most human body fluids, any body fluids contaminated with blood and all body fluids in situations where it is difficult or impossible to differentiate between body fluids.
 - c. Any unfixed tissue or organ (other than intact skin) from a human (living or dead).
 - d. Human Immunodeficiency Virus (HIV)- containing cell or tissue cultures, organ cultures, and HIV or Hepatitis B virus (HBV) – containing culture mediums or other solutions infected with HIV or HBV.
3. Exposure Control Plan (ECP). All Employers who have personnel who may be exposed to bloodborne pathogens in the performance of their duties are required to have an ECP. This is a written program that sets forth policies and procedures to protect personnel from occupational exposure to blood and other potentially infectious materials (OPIM). As a minimum it should include:
 - a. Exposure determination (ie determining potential for exposure while performing normal duty requirements)
 - b. Schedule and method of implementation for the elements of the standards.

- c. Procedure for exposure incident evaluation.
- 4. d. Job Task Analysis Exposure determination must be made without regard to personal protective clothing and equipment. The job list would be divided into two separate lists.
 - a. Job classification in which all employees have occupational exposure. (Most medical fields would be included).
 - b. Job classification in which some employees may have occupational exposure. (Ex. Police, Firefighters, Investigators).

NOTE: u would identify and document, in your ECP the specific tasks and procedures, where there is exposure to blood or other potentially infectious materials while performing those jobs.

Health Risks at an Accident Site

Personnel at any accident site must be concerned with the risks associated with possible exposure to bloodborne pathogens and potential injuries while working at the site.

- 1. Two communicable diseases which present a particular hazard for investigators and other personnel at an accident site:
 - a. Human Immunodeficiency Virus (HIV) is a bloodborne pathogen. Risk of contacting the disease from blood body fluids, and tissue of infected persons is very low but precautions are always necessary. Though risk is low, the fear of HIV and AIDS causes great concern among our society, including military personnel.

NOTE: The HIV virus is relatively fragile and susceptible to disinfectants, drying, and heat. For example household bleach in a 1:9 or 1:10 solution (one cup of bleach to one gallon of water) or 70 per cent alcohol will inactivate the virus in about one minute. The virus can also be inactivated by use of an autoclave, by fire, gamma rays, and x-rays.

- b. Hepatitis B (HBV) is also found in body fluids and tissue. A cut on your skin can allow the pathogen to enter your system. The Hepatitis B virus is not fragile and is harder to destroy than HIV. It can still be present after HIV has been destroyed. It is also more readily transmittable than HIV and requires a smaller amount to infect you. HBV is the GREATER risk.

NOTE: Most Safety personnel do not have to be inoculated with booster for HBV unless geographic area requires it. However, medical, rescue and fire fighting personnel should be inoculated as well as full time accident investigators with U.S. Army Safety Center.

2. Although HIV and HBV may be the most notorious communicable diseases that an investigator may face, they are not the only ones. Personnel at accident sites may face exposure to a variety of possible infectious diseases.
3. Accident sites can present their own hazards to personnel due to the possible cuts, abrasions, and serious lacerations that can occur as personnel shift through the wreckage, pick up parts, or participate in the removal or clean up of the site.
 - a. Jagged Metals
 - b. Sharp Composite Fibers.

Control and Protection

OSHA requires supervisors to institute certain methods of control to eliminate or minimize employee exposure to bloodborne pathogens.

1. Work Practice Controls alter the manner in which a task is performed. Establishes specific procedures that must be followed.
 - a. Advanced planning on procedures to be followed.
 - b. Common Sense at the site.
 - c. Avoiding Contamination
 - d. Minimize movement of contaminated parts at the site.
 - e. Hand washing required (soap and water as soon as possible).
 - f. Prohibitions:
 - 1) Don't store food or drink near biohazard.
 - 2) Transport non-disposable Personal Protective Equipment (PPE) in approved containers.
 - 3) Dispose of regulated waste in biohazard bags.
2. Engineering Controls - Controls that isolate or remove the bloodborne pathogen hazard from the workplace.
 - a. Products designed to create a safer work environment for Investigators. They don't have to be high-tech -just effective.
 - b. Antiseptic Towelettes
 - c. Bottle of Disinfectant
 - d. Washing Facilities
 - e. Biohazard Bags
 - f. Toxicology Kit
 - g. Signs and Labels

NOTE: Work practice and Engineering controls are the primary methods used to control the transmission of bloodborne pathogens and protect personnel.

3. Personal Protective Equipment (PPE) must be worn by personnel at accident site. Who will wear it and what type of equipment should be used will be decided prior to personnel entering the site. Determination of PPE to be worn should be made by Board President and Safety Officer.
 - a. Kinds of PPE
 - 1) Disposable
 - 2) Non-disposable
 - b. Disinfect Reusable PPE
 - c. Utility gloves
 - d. Waterproof latex gloves
 - e. Boots/shoe covers
 - f. Disposable mask
 - g. Non-disposable goggles
4. Removal of PPE when you depart the accident site. Procedures are similar to the methods used for removal of chemical equipment.
 - a. Go to designated area for PPE removal
 - b. Remove and disinfect work gloves
 - c. Remove coveralls
 - d. Disinfect latex gloves
 - e. Remove and disinfect boot covers
 - f. Re-glove
 - g. Remove and disinfect goggles
 - h. Remove mask
 - i. Remove latex gloves
 - j. Close and seal regulated waste bag/box
 - k. Cleanse hands and face with disinfectant wipes
 - l. Wash with soap and water as soon as possible
 - m. Exit via controlled entry/exit point
5. Housekeeping is each individual's responsibility.
 - a. Must be performed by each Investigator as well as other personnel performing duties at the site.

- b. Tool, tape recorder, clipboard
 - c. Camera equipment
 - d. Contaminated aircraft parts
 - e. Contaminated laundry stored in labeled containers
 - f. Do not take personal contaminated laundry home
 - g. Wash at appropriate facility
6. Rule of Thumb to follow:
- a. Scene is contaminated - treat it as such
 - b. You are clean - when you enter
 - c. Keep clean things clean - avoid contaminating as much as feasible.
 - d. PPE is meant to keep Investigator clean.
 - e. Anything contaminated stays inside biohazard bag
 - f. Don't bring contaminated items home - dispose or clean
 - g. If exposure occurs - you or item is contaminated:
 - 1) Rinse/cleans contaminated area
 - 2) Wash with Soap and Water
 - 3) Notify Supervisor (Board President/Safety Officer)
7. Prior to entering the Site, the Board President and Safety Officers must perform a field job task analysis per the Exposure Control Plan. Each accident site is unique.
- a. Initial accident site survey
 - 1) Approach with Caution
 - 2) Consider environmental conditions (wind, rain) effect on the spread of any possible contamination at the site.
 - 3) Use as a minimum: latex gloves, utility gloves, goggles, and boots.
 - 4) Board President/Safety Officer will determine proper PPE for Investigators, guards, and other personnel operating at the site.

NOTE: Fire department personnel and medical examiner will be able to give Board President/Safety Officer information on rescue and body recovery that may be of great value in determining the extent of biohazards.

NOTE: With exception of medical and rescue personnel, most individuals who may be required to perform duty in or around

the accident site will not be covered in Exposure Control Plan as it may not be required. Unit Pre-accident plans should incorporate policy on work practice and engineering controls. This should include requirements for mandatory briefings of personnel who will be operating in and around an accident site

- b. On site tasks:
 - 1) Board President/Safety Officer survey wreckage area.
 - 2) Establishes Point of entry/exit
 - 3) Placards biohazard area - if applicable
 - 4) Identifies participants -who is authorized to enter
 - 5) Briefs all participants on prohibitions, removal of PPE that will be worn, and disposal of waste.
- c. Minimum Equipment should include:
 - 1) Latex gloves or double latex gloves
 - 2) Utility work gloves
 - 3) Disinfectant wipes
 - 4) Red biohazard bag
 - 5) 10 per cent household chlorine bleach solution
 - 6) Boot Covers
- d. Additional equipment protection that may be necessary:
 - 1) Protective coveralls
 - 2) Extra pairs of latex gloves
 - 3) Boot covers - extra
 - 4) Goggles
 - 5) Extra disinfectant towelettes and red biohazard bags.
- e. Component parts to be shipped elsewhere for further study should be carefully examined for contamination.
 - 1) Use common sense during preparation
 - 2) If it won't alter evidence, wash parts with 10 per cent household chlorine bleach solution. (Talk to CCAD, USAARL, or wherever you are shipping it prior to cleaning any part.
 - 3) Air dry parts for at least 30 minutes.
 - 4) Do not disinfect critical fatigue fracture with a chlorine-based bleach solution. In some case, you can use plain water and wipe dry, disposing of the wipe in regulated

waste bag. Again, talk to the “experts” prior to cleaning components.

- 5) Box or wrap (pad sharp edges).
- 6) Document how part has been disinfected.
- f. Post Accident Investigation Tasks:
 - 1) When reexamining contaminated specimens - Use PPE.
 - 2) Common sense approach. Exposure Control Plan will not cover every situation that may arise. Additional safeguards or procedures may have to be instituted.
- g. Manufacturer’s participants are governed by the same OSHA standards. In some cases they may have PPE or training. Assist them if you can. Brief them on the requirements for operating at the site. Allow them in, if you need them, but only after they have acknowledged the potential risks.
- h. As duties are assigned at the site, keep as many personnel away from contaminated areas as possible. Individual recording information or photographer can usually operate at a safe distance. Limit manufacturers and other “expert” personnel access to site as much as possible. News media and other personnel (ie guards) should be kept on the outside of the rope.

NOTE: NEVER interview witnesses within the hazard area or in areas that might be contaminated. Do NOT contaminate those personnel around the scene by touching them (ie handshake) or allowing them to handle contaminated tems.
- i. Off site investigations. When wreckage, parts, etc. are recovered move to hangar, motor pool, etc., if it has not been decontaminated:
 - 1) Treat same as if it was on-site
 - 2) Signs/Placards
 - 3) Keep spectators away
 - 4) Keep new media away
 - 5) If deemed necessary, post guards

Appendix O

Command Climate Checklist

Aviation Checklist

1. What is the PC, crew, flight lead selection process in the unit?
2. What is the UT selection process in the unit?
3. How are aviators distributed within a unit?
4. Are senior aviators (CW3/4, CW5) and/or IPs equally distributed throughout the organization to the extent possible?
5. Is the commander and/or platoon leader (or appropriate leader) current and proficient in the aircraft and equipment assigned to his unit, e.g., NVGs?
6. Does the unit perform its mission requirements without "surging" on a continuing basis?
 - a. If not, why not? Is it because of:
 - 1) Management (operations, aviation maintenance, personnel)?
 - 2) Leadership?
 - 3) Mission requirements out of balance with resources?
 - 4) Everything #1 priority?
7. Does the pace of the unit operations and mission requirements appear excessive or out of line with available resources?
8. Crawl, walk, run concept appear sound?
9. From the flight surgeon's perspective, are the aviators healthy (mentally and physically)?
10. Are the same aviators in the unit incurring the accidents?
11. Are training programs in line with the unit mission?
12. What is the unit's NVG training program?
13. What is the IP-to-pilot ratio in the unit?

14. Is the unit experiencing difficulty in meeting various currency requirements? (i.e., NVG)
15. Is RL progression within the unit on track?
16. What has been the aviator turnover rate for the past year? (PCS, TDY, retire, etc.)
17. Does the unit have sufficient pilots to man their aircraft or are they forced to cross level among units?
18. Are there sufficient crew chiefs in the unit?

What is the utilization rate for aircraft mechanics on a day-to-day basis?

What is the unit's "C" rating?

Review the Unit Status Report (USR).

Ground Checklist

1. What is the crew, TC, driver selection process in the unit?
 2. How are NCOs (E5 through E9) distributed within a unit?
 3. Are senior NCOs equally distributed throughout the organization to the extent possible?
 4. What is the authorized versus on-hand strength?
 5. Is the commander and/or platoon leader (or appropriate leader) current and proficient in the equipment assigned to his unit, e.g., NVGs?
 6. Does the unit perform its mission requirements without "surging" on a continuing basis?
 - a. If not, why not? Is it because of:
 - 1) Management (operations, maintenance, personnel)?
 - 2) Leadership?
 - 3) Mission requirements out of balance with resources?
 - 4) Everything is #1 priority?
 7. Does the pace of the unit operations and mission requirements appear excessive or out of line with available resources?
 8. Crawl, walk, run concept appear sound?
 9. From the medical doctor's perspective, are the soldiers healthy (mentally and physically)?
 10. Are training programs in line with the unit mission?
 11. What is the unit's NVG training program?
 12. Is the unit experiencing difficulty in meeting various currency requirements? (i.e., NVG)
 13. What has been the leadership turnover rate for the past year? (PCS, TDY, retire, etc.)
 14. Does the unit have sufficient soldiers to man their equipment or are they forced to cross level among units?
 15. Are there sufficient mechanics in the unit?
- What is the utilization rate for mechanics on a day-to-day basis?
- What is the unit's "C" rating?
- Review the Unit Status Report (USR).

Appendix P

Authorized Collateral Board Information

1. Reference: AR 385-40, para 1-8; DA Pam 385-40, para 2-1f.
 - a. The Collateral Board's investigation is secondary to the accident investigation. Collateral board members will not interfere with the accident investigation at any time.
 - b. Witnesses may not appear before a Collateral Board until the Accident Investigation Board has released them. The accident board will provide a list of witnesses to the collateral officer.
2. The following information may be provided the Collateral Investigation Board.
 - a. All information contained on the left side, which includes all factual data but is not limited to the following items:
 - 1) Photographs
 - 2) Teardown and analysis
 - 3) Fuel and oil analysis
 - 4) ECOD
 - 5) Maintenance records
 - 6) Flight plans
 - 7) Medical records
 - 8) Accident reports
 - 9) Autopsy reports
 - 10) Weather reports
 - b. Information that will not be given the Collateral board is:
 - 1) Witness statements
 - 2) Findings, analysis, and recommendations
 - 3) Any other analysis or assumptions derived at by the Accident Investigation Board
 - 4) Intra-cockpit voice recordings

NOTE: The board president should consult the USASC legal officer concerning the release of gun camera videos, and information obtained from flight data recorders and other electronic information recording devices installed on Army vehicles and aircraft.

Appendix Q

Evaluating Risk Management

(Ref: FM 100-14)

1. General. As part of the accident investigation, the risk management process within the command must be evaluated. Here are some simple guidelines when investigating risk management principles.
 - a. First look at the pre-mission risk assessment:
 - 1) Were all the obvious hazards identified or was it a “pencil whipped, pre-printed form?
 - 2) Was the crew/operator aware of the risk assessment and of the controls imposed by the briefer/approver?
 - 3) Were the controls appropriate for the mission/operator/equipment to be used.
 - 4) Was the operation supervised, and was the supervisor aware of the hazards and controls?
 - b. When an accident occurs and is attributed to human factors (someone either failed to take appropriate action or took inappropriate action) you can generally track the cause to a failure in risk management or lack of military or self-discipline. When evaluating how risk management failed, consider the following:
 - 1) When conditions changed during the mission, were the hazards and associated risks reassessed and additional controls considered and implemented? Typically, we hear, “The commander, platoon leader, etc., did the risk management before the mission.” It is generally not understood that the risk management concept is a fluid and evolving process.
 - 2) Did the personnel performing the mission adhere to the controls or ignore them? As an example, a unit’s SOP requires a ceiling of 500 feet with a minimum of 2-mile visibility for night, unaided flight. When the flight

encountered weather less than that, did they descend and continue, hoping to clear it; did they turn around? What is the general feeling within the unit on this issue? For ground operations, did the SOP specify a specific personnel mix, speed, load, etc., and was it briefed, enforced, and followed? A standard not briefed or enforced is a failure at the leader level. A standard briefed but not followed is an individual discipline failure.

- 3) Talk with the junior leadership (LT, SGT, SPC). Do they understand the concept of risk management and do they understand they are responsible as supervisors for performing risk management for every task they do or supervise? Most junior soldiers do not understand risk management as a process that they should perform on a daily basis; whether they drive their cars, drive military vehicles, fly aircraft, or conduct range operations. The risk management process is more obvious for some operations than others.
- 4) It has been noted in previous accident investigations that commanders generally perform adequate written assessments of the hazards and associated risks prior to conducting operations (usually to meet regulatory requirements). Also, appropriate controls are usually implemented, such as pre-qualification training, drown proofing, driver's training, setting speed limits, etc. The problem is, that the assessments lose effectiveness at that point, often being "filed away" until the accident board arrives, and the risk management process stops. Generally the established controls are not thoroughly followed because they were either unknown, inconvenient, or time ran out and they just didn't have time to do the identified training or pre-qualification; and supervisors did not ensure that the controls were followed.

Appendix R

Accident Investigations Involving Ammunition and Explosives

References.

- ◆ AR 75-1, Malfunctions Involving Ammunition and Explosives, 20 Aug 93
- ◆ AR 195-2, Criminal Investigations Activities, 30 Oct 85
- ◆ AR 385-40, Accident Reporting and Records, 1 Nov 94
- ◆ AR 385-64, US Army Explosives Safety Program, 20 Nov 97

General. Investigations of accidents, which involve ammunition or explosives (A&E), are essentially like all other Army accident investigations, except that they can involve an additional investigation team. (Explosives accidents are described in chapter 9 of AR 385-40.)

Command and Control. As with any accident in which criminal activity is suspected, primary jurisdiction over the accident site rests with CID, IAW chapter 3 of AR 195-2. Following release by the CID, the CAI/IAI Board conducts the primary accident investigation for DA/MACOM. All other investigations assume a subordinate role. The CAI/IAI Board President controls the coordination and investigative actions of all technical teams supporting the board and, alone, controls access to the accident site and is responsible for releasing the site after all legitimate investigative actions are complete.

Relationship of the CAI/IAI Board to the Army Ammunition Community. The US Army Technical Center for Explosives Safety (USATCES) provides technical assistance upon request (IAW AR 385-64) to CAI/IAI investigations in which A&E are involved. When the assistance of USATCES is not requested, technical ammunition assistance may be requested locally from supporting Quality Assurance Specialist (Ammunition Surveillance) (QASAS) personnel.

Relationship of the CAI/IAI to DA Investigation Team for Malfunctions (DAITM). A DAITM is authorized to perform an on-site inspection to establish the probable cause of an ammunition malfunction IAW AR 75-1 (DAITM duties are described in chapter 3). Although the arrival of a DAITM has led to turf battles with the

CAI/IAI in the past, the current AR 75-1 (1993) established that the CAI/IAI had “coordination control of the accident investigation actions and access to the accident site”. AR 385-40 (1994) further established that “the DAITM will conduct its investigation as part of the CAI/IAI team”. The primacy of the CAI/IAI investigation and of the CAI/IAI Board President should no longer be in dispute.

Sharing of Accident Investigation Information. Common factual information may be shared between the CAI/IAI, CID and the DAITM. However the contents of interview statements will not be released between the teams or with any other investigative bodies, except when the DAITM is part of the CAI/IAI. Each legitimate investigative body may, however, conduct separate interviews with the witnesses.

Relationship of the CAI/IAI to the DOD Explosives Safety Council (DDESB). The DDESB has a legitimate interest in Army accidents, which involve A&E. However, the DDESB has no authority at an Army accident site and it should not correspond directly with the CAI/IAI Board concerning specific accidents. AR 385-64 establishes USATCES as the intermediary between the Army and the DDESB on requests for information, reports and requests for assistance. The CAI/IAI Board should refer requests for information from the DDESB to USATCES.

Appendix S

DA Form 7305-R (Telephonic Notification of Aviation Accident)

Completion instructions for DA Form 7305-R, Telephonic Notification of Aviation Accident

Block 1. Enter the name, primary duty, and telephone number of the point of contact for this accident.

Block 2. Check the appropriate box that indicates the accident's classification.

Block 3. Enter the date of the accident using *YYDDMM* format. Enter the local time of the accident using the 24 hour clock.

Block 4. Enter the complete serial number of the aircraft.

Block 5. Enter the type of aircraft (mission, design, and series) listed in block 4.

Block 6. Check the appropriate box indicating the time of day. Dawn is that period of time between beginning of morning nautical twilight (BMNT) and official sunrise. Dusk is that period of time between sunset and end of evening nautical twilight (EENT).

Block 7. Enter the mission code as shown on the DA Form 2408-12. Also, check the appropriate box to indicate whether the mission was a single- or multi-ship operation.

Block 8. Check the appropriate box indicating whether the aircraft was performing nap-of-the-earth (NOE) operations.

Block 9. Check the appropriate box to indicate whether night vision device(s) / system (NVD) was in use at the time of the accident. If "Yes," specify type NVD used.

Block 10. Enter the name and address of the unit that owns the aircraft.

Block 11. Enter the name of the major command (MACOM) associated with the unit in block 10.

Block 12. Enter the name of the closest military installation to the accident site.

Block 13. Enter the exact location of the accident. You may use latitude / longitude or any other method to exactly identify the accident location.

Block 14. Check the appropriate box indicating if this accident involves material that is explosive, hazardous, or sensitive.

Block 15. If “Yes” was checked in block 14, check the appropriate box indicating if the material was secure.

Block 16. Check the appropriate box indicating if the accident site was secure IAW AR 385-40.

Block 17. Check the appropriate box indicating if the accident site was disturbed.

Block 18. If “Yes” was checked in block 17, check the appropriate box indicating if photos were taken prior to the site being disturbed.

Block 19. Check the appropriate box indicating if a flight data recorder was installed in the aircraft.

Block 20. Check the appropriate box indicating the type of flight plan / clearance for this flight.

Block 21. Enter the number of personnel involved in the accident. Identify individuals by position and indicate highest ranking individual.

Block 22. Enter the number of injuries by type as appropriate.

Block 23. Enter a brief synopsis of events from the initial onset of the emergency until the aircraft is at rest, to include injuries resulting from the accident.

Block 24. Check the appropriate box indicating if the news media is aware of the accident.

Block 25. Enter the name and ICAO identifier of the nearest commercial airport that is large enough to accommodate international flights (must be capable of handling a C-12).

Block 26. USASC use only: Check the appropriate box indicating who will perform the accident investigation.

WORKSHEET FOR TELEPHONIC NOTIFICATION OF AVIATION ACCIDENT/INCIDENT

For use of this form, see AR 385-40; the proponent agency is OCSA

| | | | | | | | |
|--|--|--|----------|---|-----------------|--|----------------------------|
| SHADED BLOCKS ARE FOR USASC USE ONLY | | A. ASMIS CASE NUMBER | | B. TIME & DATE OPS RECEIVED REPORT | | | |
| | | | | a. Year | b. Month | c. Day | d. Time (local) |
| NOTE: ITEMS 24 AND 25 ARE NOT REQUIRED FOR CLASS C ACCIDENT | | | | | | | |
| 1. POINT OF CONTACT FOR ACCIDENT INFORMATION | | a. Name | | | | | |
| Duty | | <input type="checkbox"/> Commander <input type="checkbox"/> Safety Officer <input type="checkbox"/> Other (Specify) | | c. Phone Number | | DSN: _____ Commercial: _____ | |
| 2. ACCIDENT CLASSIFICATION | | 3. TIME & DATE OF ACCIDENT | | | | 4. AIRCRAFT SERIAL NUMBER | 5. TYPE OF AIRCRAFT |
| <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C | | a. Year | b. Month | c. Day | d. Time (local) | | |
| 6. PERIOD OF DAY | | 7. MISSION BEING PERFORMED | | | | | |
| <input type="checkbox"/> Dawn <input type="checkbox"/> Dusk <input type="checkbox"/> Day <input type="checkbox"/> Night | | a. Type (Training, Svc, etc.) | | | | b. Operation <input type="checkbox"/> Single-Ship <input type="checkbox"/> Multi-Ship | |
| | | | | | | 8. NOE | |
| | | | | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 9. NIGHT VISION DEVICE | | | | 10. UNIT OWING AIRCRAFT | | 11. MACOM | |
| a. In Use <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | b. If Yes <input type="checkbox"/> ANVIS <input type="checkbox"/> FLIR <input type="checkbox"/> AN/PVS-5 <input type="checkbox"/> LLTV | | | |
| 12. MILITARY INSTALLATION NEAREST ACCIDENT SITE | | | | 13. EXACT ACCIDENT LOCATION | | | |
| | | | | | | | |
| CHECK "YES" or "NO" FOR QUESTIONS 14 THROUGH 19 | | | | Yes | No | | |
| 14. EXPLOSIVE/HAZARDOUS/SENSITIVE MATERIALS INVOLVED? | | | | | | 21. PERSONNEL INVOLVED a. No. of Personnel by Rank/Category _____ Officer _____ WO _____ Enlisted _____ Army Civilian _____ c. Highest Rank | |
| 15. IF YES TO #14, ARE THEY SECURE? | | | | | | | |
| 16. ACCIDENT SITE SECURED IAW DA PAM 385-40? | | | | | | | |
| 17. HAS ACCIDENT SCENE BEEN DISTURBED? | | | | | | | |
| 18. IF YES TO #17, WERE PHOTOS, ETC. MADE BEFORE DISTURBING THE SCENE? | | | | | | 22. INJURIES (Enter # of each) _____ Fatalities _____ Non-Fatal Injuries As soon as possible, the following additional information is required on all injured personnel; name, personnel classification, degree of injury, and SSAN. | |
| 19. FLIGHT DATA RECORDER INSTALLED? | | | | | | | |
| 20. CLEARANCE WAS: <input type="checkbox"/> VFR <input type="checkbox"/> IFR | | | | | | | |
| 23. ACCIDENT SYNOPSIS (What Happened) | | | | | | | |
| | | | | | | | |
| 24. NEWS MEDIA AWARE OF ACCIDENT | | 25. NEAREST AIRFIELD | | a. Nearest that can handle C-12 (4,000 ft. min.) | | | |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | b. Nearest commercial airfield | | | |
| 26. WHO WILL INVESTIGATE? | | a. Installation Level Accident Investigation (IAI) Board Appointed | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | b. CAI Team Dispatched <input type="checkbox"/> Yes <input type="checkbox"/> No Team: _____ | |

DA Form 2397-AB-R; Abbreviated Aviation Accident Report

Completion instructions for DA Form 2397-AB-R

Note: Complete the entire form (both sides) for all aircraft ground Class A and B, combat Class A and B, and all Class C accidents. For Class D accidents, Class E and F incidents not involving human error or injury; only Blocks 1–18 are required. For Class D accidents or Class E and F incidents involving human error or injury, complete blocks 1 through 18, 21, 23, 24, and pertinent blocks dependent upon the circumstances/situation. The DA Form 2397-AB-R will be completed as follows:

Block 1. The case number consists of the year, month, and day (YYMMDD) of the accident, the local time of the accident, and the seven-digit aircraft serial number. Aircraft serial number must contain seven digits. In those cases where the aircraft serial number is less than seven digits, insert zeros (0) after the model year (first two digits) until seven digits are reflected.

Block 2. Check the boxes corresponding to the appropriate classification and category as defined in AR 385-40.

Block 3. Enter the mission, type, design, and series of the aircraft involved in the accident; e.g., UH-60L.

Block 4. Check the appropriate box. Dawn is that period of time between beginning of morning nautical twilight (BMNT) and official sunrise. Dusk is that period of time between official sunset and end of evening nautical twilight (EENT).

Block 5. Enter the number of aircraft involved in the accident and submit a separate DA Form 2397-AB-R for each aircraft included. Do not include inoperative aircraft. For additional AAAR forms, do not duplicate data included on the case aircraft form.

Block 6. Enter the name of the nearest military installation/facility from the accident site.

Block 7. Enter the name of the closest city and state to the accident site. Identify the country if outside the United States. Also check the appropriate boxes to indicate whether or not the accident occurred on or off post, or on or off an airfield.

Block 8. For the organization involved, enter the six digit UIC and abbreviated title of the lowest organization to which the aircraft is assigned or hand-receipted at the time of the accident.

Block 9. Enter the information pertaining to the organization most responsible/accountable for the accident. If the organization is the same as block 8, leave blank.

Block 10. Pertains to the estimated accident/incident damage cost. Do not include those items excluded from accident cost by AR 385–40. Enter in blocks 10b–10h, only the cost associated with the aircraft to which this form pertains. To complete this block:

Block 10a. If “Yes,” enter the replacement cost per T B 43–0002–3 and do not fill in blocks 10c and 10d (man-hour).

Block 10b. Enter the cost of aircraft and component damage, excluding man-hour cost.

Block 10c. Enter only those manhours required to repair aircraft damage.

Block 10d. Manhour cost pertains to aircraft damage only, based on current cost criteria specified in AR 385–40. Other manhour cost will be included in block 10e (Other Damage Military).

Block 10e. Enter all costs to other military property resulting from the accident (includes inoperative aircraft).

Block 10f. Enter the damage cost to civilian property.

Block 10g. Enter the injury cost of all personnel here. The cost can be obtained by adding the cost of block 19 of DA Forms 2397–9–R or injury criteria at table 2–1, AR 385–40.

Block 10h. Enter the total of blocks 10b through 10g.

Block 10i. Enter the total of blocks 10h (multiple aircraft accidents only).

Block 11. Complete the general data block as follows:

Block 11a. Enter the mission as shown on the DA Form 2408–12, or as listed below. For maintenance operations with or without intent for flight, enter “S” for service. If none enter “NA.” Also, check the appropriate box to indicated in the mission was a single or multi-ship operation.

| Code | Description |
|------|--------------------------|
| T | Training |
| S | Service |
| D | Imminent Danger |
| C | Combat |
| F | Functional Test flight |
| A | Acceptance Test Flight |
| X | Experimental Test Flight |

Block 11b. Check the appropriate box which indicates the type flight plan on file at the time of the accident.

Block 11c. Check the appropriate box to indicate whether or not a flight data recorder was installed.

Block 11d. Check the appropriate box to indicate whether or not night vision device(s)/system (NVD) was in use at the time of the accident/incident. If “Yes,” type NVD used in the space provided.

Block 11e. Check the appropriate box to indicate the phase of operation when the fire started. Identify in the remarks, the combustible material and the ignition source of the fire.

Block 11f. If “Yes,” is checked for Class C and above accidents, complete a DA Form 2397–6–R and attach it to the report. For Class D, E, and F, explain the type and source of spillage in block 15.

Block 11g. Check the appropriate box to indicate whether or not the subject aircraft was participating in a field training exercise (FTX). If “Yes,” enter the FTX name in the space provided.

Block 12. Enter the flight parameters at the times indicated. Flight parameters pertains to both flight and ground operations of the aircraft.

Block 12a. Enter the listed flight parameters at the onset of the emergency.

Block 12b. Enter the flight parameters at the time of the first major impact/accident, except in those cases where an in-flight strike occurred, resulting in a second impact, in which case the second impact will be recorded here.

| Code | Description |
|------|--|
| A | Starting engine/run-up |
| B | Stationary (engines running) |
| C | Taxi |
| D | Takeoff |
| E | Hover IGE |
| F | Climb (after takeoff phase and climb to altitude is established) |
| G | Cruise |
| H | Combat maneuver (masking, unmasking, gun run, evasive action, etc.) |
| I | Descent (does not include approach) |
| J | Approach (prior to landing/termination) |
| K | Emergency auto-rotation |
| L | Go-around (the intended landing/termination is aborted) |
| M | Landing (aircraft touchdown until forward motion stops and aircraft clears runway) |
| N | Low level (constant airspeed and altitude below 500 feet agl) |
| O | Contour (varying altitude, while maintaining constant height above the contour of the earth's surface and/or obstacle) |
| P | NOE (varying airspeed and altitude, using the earth's contour/foliage for concealment) |
| Q | Hover OGE |
| R | Crash (crew has no control over aircraft altitude) |
| S | Aerobatics |
| T | Termination with power (planned/attempted termination of an auto-rotation is to a hover) |
| U | Under-determined/unknown |
| V | Power recovery (the power of returning the aircraft to power; flight from an engine-out configuration) |
| W | Training auto-rotation |

| | |
|---|--|
| X | Formation |
| Y | Preflight activity (any activity prior to the flight that caused or contributed to the accident; e.g., mission planning, crew assignment, training, preflight, etc.) |
| Z | Refueling (to identify the type refueling being conducted, use an additional code preceding the Z code; e.g., in-flight refueling should be coded as GZ). |

Block 13. Enter up to three event codes that best categorize(s) the accident/incident. Enter the event code that best describes the accident/incident in the first space. Event codes are listed below.

| Code | Description |
|-------|--|
| 01 | Precautionary Landing (PL) |
| 02 | Forced landing (FL) |
| 03 | Aborted takeoff |
| 04 | Human factor event |
| 05 | Cargo event |
| 06 | Personnel-handling event |
| 07 | External-stores event |
| 08 | Multiple-aircraft event |
| 09 | Misappropriated aircraft |
| 10 | Drone aircraft |
| 11 | Contractor aircraft accident |
| 12 | Aircraft ground accident |
| 13-19 | (Reserved for future additions.) |
| 20 | Refueling accident |
| 21 | Midair collision |
| 22 | Helocasting |
| 23 | Hard landing |
| 24 | Wheels-up landing |
| 25 | Landing gear collapse/retraction |
| 26 | Undershoot |
| 27 | Overshoot or overrun |
| 28 | Ditching |
| 29 | Ground loop / swerve |
| 30 | Collision with ground/water |
| 31 | Aircraft collision on the ground |
| 32 | Other collisions |
| 33 | Rotor over speed |
| 34 | Fire and/or explosion on the ground |
| 35 | Fire and/or explosion in the air |
| 36 | Equipment loss or dropped object |
| 37 | Inflight breakup |
| 38 | Spin or stall |
| 39 | Abandoned aircraft |
| 40 | Flight-related accident |
| 41 | Instrument meteorological conditions (IMC) |
| 42 | Rappelling |
| 43 | STABO |
| 44 | Overstress |
| 45 | FOD Incident |
| 46 | Rotor/prop wash |
| 47 | Engine overspeed / overtemp |
| 48 | Brownout |
| 49 | Bird strike |
| 50 | Tree strike |
| 51 | Wire strike |

| | |
|----|--------------------------------------|
| 52 | Inflight breakup |
| 53 | Missing aircraft |
| 54 | FOD |
| 55 | Dynamic rollover |
| 56 | MOC |
| 57 | Weapons related |
| 58 | Lightning strike |
| 59 | Rescue operations |
| 60 | Object strike |
| 61 | Air to ground collision |
| 62 | Stump strike |
| 63 | Antenna strike |
| 64 | Engine overtorque/overload |
| 65 | Whiteout |
| 66 | Tiedown strike |
| 67 | Parachute |
| 68 | Mast bumping |
| 69 | Structural icing |
| 70 | Engine failure |
| 71 | Transmission failure |
| 72 | Vertical fin strike |
| 73 | Spike knock |
| 74 | Seatbelt/restraint harness strike |
| 75 | Blade flapping |
| 76 | Fuel exhaustion |
| 77 | Fuel starvation |
| 78 | Animal strike |
| 79 | Battery fire/overheat |
| 80 | Excessive yaw/spin |
| 81 | Tail-boob strike |
| 82 | Airframe |
| 83 | Landing gear |
| 84 | Power train |
| 85 | Drive train |
| 86 | Rotor/propellers |
| 87 | Hydraulics system |
| 88 | Pneumatic system |
| 89 | Instruments |
| 90 | Warning system |
| 91 | Electrical system |
| 92 | Fuel system |
| 93 | Flight control |
| 94 | Utility/environmental control system |
| 95 | Avionics |
| 96 | Cargo-handling equipment |
| 97 | Armament |

Block 14. Enter “D”, “S”, or “U” in the appropriate block to indicate whether or not human, materiel, or environment factors played a definite, suspected, or undetermined. Each indicated contributing factor will be substantiated by the findings (block 24) for Class C and above accidents and all classes involving human error, and/or by the summary (block 15), for Class D accidents, Class E and F incidents not involving human error. Also, the appropriate block pertaining to the factor, e.g., for definite or suspected materiel factors, block 16, will be completed on the failed part.

Block 15. Enter a concise summary of events from the initial onset of the emergency until the aircraft is at rest, to include injuries and F incidents not involving human error, specify the failure/effect and cause. Use a continuation sheet if necessary.

Block 16. This block must be completed if a materiel factor as indicated in block 14b. Enter the requested data for materiel failure / malfunction resulting from FWT, maintenance or manufacture error, and/or design deficiency (for maintenance error, over which the Army has control, block 21 must also be completed). Component data is required only on those involving the power and drive trains; e.g., engine, transmission, gearboxes, combining transmissions, etc.

Block 17. Check this block to reflect the environmental conditions present at the time and location of the accident/incident. This block must be completed for all reports. Environmental contributing factor in block 14c will be checked and narratively reported in the summary or findings, depending upon the classification and circumstances.

Block 18. For Class C and above accidents, enter the data for the investigation board president. For Class D accidents, Class E and F incidents, enter the safety officer / representative submitting the report.

Note: for Class D, E, and F reports not involving human error/injury, no further entries are required.

Block 19. Complete this block for night Class C and above accidents or night relevant dawn and dusk accidents involving human error, when NVD or environmental factors were present.

Block 20. Complete this block for all wire strikes.

Block 21. Complete this block for all Class A, B, and C accidents for crew members with access to the controls regardless of the accident cause factor. Also complete this block for all personnel who had a causative role or was injured as a result of the accident/incident (Class A–F). This block is not required for materiel failure Class D accidents, Class E and F incidents, where the only cause of the failure was fair wear and tear (FWT). If more than three personnel are involved, use additional forms as necessary. Use the instructions for Block 21a for completing Blocks 21b and 21c.

Block 21a. Enter the individual's last name, and middle initial.

Block 21a(1). Enter the individual's social security number.

Block 21a(2). Enter the individual's pay grade; e.g., 04, W3, GS–09, WG–10, etc. See table below.

| Code | Description |
|--------|-------------------------|
| 01-O10 | Commissioned officer |
| W1-W5 | Warrant officer |
| E1-E9 | Enlisted service member |

| | |
|----------------------|------------------------------|
| GS1-GS18 & GM13-GM18 | DOD civilian employee |
| WG1-WG18 & WS13-WS18 | Wage board employee |
| X1 | Foreign officer, all grades |
| X2 | Foreign enlisted, all grades |
| CAC | Civilian contractor employee |
| CIV | Non-DOD civilian |
| SAC | Service academy cadet |
| ROTC | ROTC student |
| OTH | Personnel other than above |

Block 21a(3). Enter the Individual's sex.

Block 21a(4). Enter the duty position code as shown on DA Form 2408–12 for the flight, or from the list below.

| Code | Description |
|------|--|
| ABC | Aviation battalion commander |
| ADC | Approach/departure controller |
| AMC | Air mission commander |
| AO | Aerial observer |
| AOT | Aerial observer trainee |
| ART | Armament |
| AUC | Aviation unit commander |
| AVT | Avionics technician |
| CE | Crew chief/flight engineer |
| CET | Combat-equipped troops/jumpers |
| CP | Copilot |
| DCO | DA/DOD-level commander / supervisor |
| DEP | Design/engineer personnel |
| FCO | Flight Leader |
| FCT | Weather personnel |
| FFT | Crash rescue/firefighters |
| FI | Engineer instructor |
| FSP | Flight service personnel |
| FTM | Fuel team member |
| FTS | Fuel team supervisor |
| GC | Ground unit commander |
| GCA | Final controller |
| GG | Ground guide/"Follow me" |
| M | General mechanic |
| GSY | Other ground support personnel |
| IE | Instrument flight examiner |
| IP | Instructor pilot |
| LCO | Local commander/supervisor |
| MCO | Major commander/supervisor |
| ME | Maintenance test flight evaluator |
| MFP | Manufacturing/rework personnel |
| MS | Maintenance supervisor |
| MO | Flight surgeon/medical attendant |
| MP | Maintenance test pilot |
| OAY | Others aboard aircraft |
| OGY | Others personnel not aboard aircraft |
| OPN | Operations dispatcher, other operations personnel |
| OR | Gunner/technical observer/maintenance personnel/photographer |
| PAX | Passenger |
| PC | Pilot in command |
| PF | Pathfinder |
| PI | Pilot |

| | |
|-----|--|
| PPM | Powerplant mechanic |
| PT | Pilot trainee |
| PTM | Power train mechanic |
| PTO | Pilot trainee, observer |
| PTR | Pilot trainee, rated |
| SI | Standardization flight engineer instructor |
| SM | Structure/airframe mechanic |
| SP | Standardization instructor pilot |
| TI | Technical Inspector |
| TWC | Tower personnel |
| UNK | Unknown |
| UT | Unit trainer |
| XP | Experimental test pilot |
| ZR | Rated passenger |

Block 21a(5). Enter the personnel service code of the individual from the list below.

| Code | Description |
|------|--|
| A | Active Army |
| B | Army Civilian |
| C | Army Contractor |
| D | NAF employee |
| E | Other U.S. military personnel (members of other DOD components on full time active duty) |
| F | Reserve Officer Training Corps (ROTC) |
| G | Military dependant family member of active-duty personnel) |
| H | NG technician, DOD employee |
| I | NG inactive duty for training |
| J | NG annual training |
| K | NG active duty special work |
| L | NG active guard/reserve |
| M | NG active duty for training other than annual |
| N | Reserve inactive duty training |
| O | Reserve annual training |
| P | Reserve active duty training |
| Q | Reserve active guard/reserve |
| R | Foreign national direct hire |
| S | Foreign national indirect hire |
| T | Foreign national KATUSA |
| U | Foreign national attached USA |
| V | Public |
| W | Not reported |

Block 21a(6). Enter the UIC of the unit to which the individual is assigned at the time of the accident.

Block 21a(7). Check “D”, “S”, or “U” to indicate the individual’s casual role in the accident.

Block 21a(8). Check the box to indicate if the individual was on the flight controls at the time of the accident or his previous control input had any influence on the accident.

Block 21a(9). Check if blood and urine samples were taken (required for Class C and above accidents). If the results are positive, attach the

AFIP results and address in findings at Block 24 (authorized medication excluded).

Block 21a(10)(a). Enter the total number of hours this individual slept during the 24-hour period preceding the accident.

Block 21a(10)(b). Enter the total number of hours this individual worked in the 24 hours preceding the accident.

Block 21a(10)(c). Enter the total number of hours this individual flew in the 24 hours preceding the accident.

Block 21a(11). If the individual is a rated aviator, check the appropriate box to indicate his/her RL and FAC level.

Block 21a(12). Check the appropriate box to indicate if the individual was injured. If "Yes" is checked, a DA Form 2397-9-R is required to be submitted for each individual injured as a result of the accident. Accidents involving injury require a physician or physician's assistant to be a member/advisor of the board. Instructions for completing the DA Form 2397-9-R are contained in this pamphlet.

Block 21a(13). Enter the total number of flight hours this individual has accrued in the aircraft design and series.

Block 22. Block 22 pertains to Class C and above accidents.

Block 22a. Any deformation of occupiable space constitutes a compromise for the purpose of this report. If "Yes", is checked, a DA Form 2397-6-R (-6) is required to be submitted with the DA Form 2397-AB-R. Instructions for completing the DA Form 2397-6-R are contained in this pamphlet.

Block 22b. Check the appropriate box to indicate if postcrash escape/rescue/survival difficulties were a factor for this individual. If "Yes," submit a DA Form 2397-10-R (-10) for the individual(s). Instructions for completing the DA Form 2397-10-R are contained in this pamphlet.

Block 22c. Check the appropriate box to indicate if protective/restraint equipment failed to function as designed, was needed but not available, or was a contributing factor in the accident. If "Yes," submit a DA Form 2397-10-R (-10) for the individual(s). Instructions for completing the DA Form 2397-10-R are contained in figure 3-12.

Block 23. Check the block(s) that best describe the cause(s) of the accident and substantiate each box checked in the findings.

Block 24. Instructions for writing findings and recommendations are contained in this pamphlet.

Block 25. Enter the substantiating data submitted with the DA Form 2397-AB-R.

Block 26. For Class C and above accidents only.

Note: Supplemental DA Form 2397–AB–R. Follow-up data, e.g., CCAD, DR (QDR), etc., teardown results are to be submitted as required. Complete only block 1 (case number) and those blocks for which the supplemental data applies.

| | | | | | | | |
|---|--|--|---|---|--|---|--|
| COMPLETE BLKS 19 - 26 FOR ALL CLASS C, COMBAT CLASS A, B, ACFT GROUND CLASS A, B, C, AND ALL CLASS ACDTs INVOLVING HUMAN ERROR/INJURY. | | | | | | | |
| 19. MOON ILLUMINATION DATA (For night Class A, B, or C acdts. If blk a is "no", no other entry is required.) | | | | | | | |
| a. Moon Above Horizon <input type="checkbox"/> Yes <input type="checkbox"/> No | | b. Moon Visible <input type="checkbox"/> Yes <input type="checkbox"/> No | | c. Moon (Degrees Above Horizon) _____ | | d. Percent of Moon Illumination _____ % | |
| e. Moon (Clock Position from Flight Path/Nose of Acft) _____ | | | | | | | |
| 20. WIRE STRIKE DATA (If "no" in blk a, no other entry is required) | | | | | | | |
| a. Wire Strike <input type="checkbox"/> Yes <input type="checkbox"/> No | | b. WSPS Installed <input type="checkbox"/> Yes <input type="checkbox"/> No | | c. WSPS Engaged Wire <input type="checkbox"/> Yes <input type="checkbox"/> No | | d. WSPS Cut Wire <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| e. WSPS Functioned as Designed <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | f. Wires Stuck No. _____ Dia (inches) _____ | | | |
| 21. PERSONNEL DATA (Complete for each crewmember with access to fit controls or other personnel injured or having a contributing role in the accident; use additional forms as needed) | | | | | | | |
| a. Name (last, first, MI) | | | (1) SSN | | (2) Grade | (3) Sex | (4) Duty |
| | | | | | (5) SVC | (6) UIC (Assigned) | (7) Contributing Role <input type="checkbox"/> D <input type="checkbox"/> S <input type="checkbox"/> N <input type="checkbox"/> U |
| (8) On Flt Controls <input type="checkbox"/> Yes <input type="checkbox"/> No | (9) Lab Test (Blood/urine; for pos attach AFIP report) <input type="checkbox"/> Yes <input type="checkbox"/> No | (10) Activity (Last 24 Hrs) | (a) Hrs Slept | (c) Hrs Flown | (11) (a) RL <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 (b) FAC <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | (12) Injury (If "yes" complete DA Form 2397-9-R) <input type="checkbox"/> Yes <input type="checkbox"/> No | (13) Tot Fit Hrs (acdt MTDS) |
| b. Name (last, first, MI) | | | (1) SSN | | (2) Grade | (3) Sex | (4) Duty |
| | | | | | (5) SVC | (6) UIC (Assigned) | (7) Contributing Role <input type="checkbox"/> D <input type="checkbox"/> S <input type="checkbox"/> N <input type="checkbox"/> U |
| (8) On Flt Controls <input type="checkbox"/> Yes <input type="checkbox"/> No | (9) Lab Test (Blood/urine; for pos attach AFIP report) <input type="checkbox"/> Yes <input type="checkbox"/> No | (10) Activity (Last 24 Hrs) | (a) Hrs Slept | (c) Hrs Flown | (11) (a) RL <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 (b) FAC <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | (12) Injury (If "yes" complete DA Form 2397-9-R) <input type="checkbox"/> Yes <input type="checkbox"/> No | (13) Tot Fit Hrs (acdt MTDS) |
| c. Name (last, first, MI) | | | (1) SSN | | (2) Grade | (3) Sex | (4) Duty |
| | | | | | (5) SVC | (6) UIC (Assigned) | (7) Contributing Role <input type="checkbox"/> D <input type="checkbox"/> S <input type="checkbox"/> N <input type="checkbox"/> U |
| (8) On Flt Controls <input type="checkbox"/> Yes <input type="checkbox"/> No | (9) Lab Test (Blood/urine; for pos attach AFIP report) <input type="checkbox"/> Yes <input type="checkbox"/> No | (10) Activity (Last 24 Hrs) | (a) Hrs Slept | (c) Hrs Flown | (11) (a) RL <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 (b) FAC <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 | (12) Injury (If "yes" complete DA Form 2397-9-R) <input type="checkbox"/> Yes <input type="checkbox"/> No | (13) Tot Fit Hrs (acdt MTDS) |
| 22. IMPACT/PROTECTIVE/ESCAPES/SURVIVAL/RESCUE DATA (For Class A, B, and C acdts) | | | | | | | |
| a. Acft Occupiable Space Compromised (If "yes" DA Form 2397-6-R required) <input type="checkbox"/> Yes <input type="checkbox"/> No | | | b. Escape/Survival Difficulties (If "yes" DA Form 2397-10-R required for the individual) <input type="checkbox"/> Yes <input type="checkbox"/> No | | | c. Protective/Restraint Equip Functioned as designed (If "no" DA Form 2397-10-R required for the individual) <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 23. ACDT CAUSE FACTORS (Blk 24 must support all cause factors checked; See DA Pam 385-40 for definition of cause factors) | | | | | | | |
| a. <input type="checkbox"/> Training Failure (Stds exist but not known or ways to achieve them not) | | b. <input type="checkbox"/> Standards Failure (Stds clear, practical, or do not exist) | | c. <input type="checkbox"/> Leader Failure (Stds are known but not enforced) | | d. <input type="checkbox"/> Individual Failure (Stds known but not followed) | |
| e. <input type="checkbox"/> Support Failure (Inadequate equip/facilities/svcs/no or type personnel) | | | | | | | |
| 24. FINDINGS AND RECOMMENDATIONS (See instructions in DA Pam 385-40 for writing findings and recommendations. Use additional sheet if required) | | | | | | | |
| | | | | | | | |
| USASC use only | Duty | Role | Failure/error Code | SI 1 | RM 1 | RM 2 | RM 3 |
| | Phase of OP | Task/part no. | | SI 2 | RM 1 | RM 2 | RM 3 |
| 25. LIST OF ATTACHMENTS (CCAD, DA Forms 2397-4, 8, 9, etc.) | | | | | | | |
| 26. COMMAND REVIEW (Required for Class A and B combat and all Class C acdts. Use separate sheet for non-concurrence, additional findngs, and recommendations.) | | | | | | | |
| REVIEWER | Organization | Name (Typed/Printed) | Rank | Signature | | Comments | |
| a. Unit Commander | | | | | | <input type="checkbox"/> Concur <input type="checkbox"/> Non-concur | |
| b. Reviewing Official | | | | | | <input type="checkbox"/> Concur <input type="checkbox"/> Non-concur | |
| c. Approving Authority | | | | | | <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved | |
| d. DA Review | US Army Safety Center | | | | | Approved for entry into ASMIS (YYMMDD) | |

DA Form 2397-R; Statement of Reviewing Officials

Completion instructions for DA Form 2397–R, Statement of Reviewing Officials

Block 1. The reviewing official(s) will indicate the official's organization and will:

1. State concurrence or nonconcurrence with the technical report. Any nonconcurrence will be fully explained.
2. Report actions taken as well as recommendations for additional action by higher headquarters or other Army commands. Attach, as enclosures to this form, copies of correspondence, forms, and other data requiring additional action.
3. Define those area(s) recommended for improvement/remedial action by the investigating board that are beyond the resources available to the command and so indicate in the forwarding endorsement to the approving authority.
4. Authenticate comments with signatures and appropriate signature block at the close of each reviewing official's remarks.
5. Higher command reviewing official(s) will indicate the official's organization and enter the same information as a through d above as comment number 2, 3, etc.

Block 2. The approving authority will indicate his command and approval or disapproval of the report. Reasons for disapproval and/or additional actions directed will be reported. The approving authority will make note of those areas recommended for improvement/remedial action by the accident investigation board or reviewing officials on which action can or will be completed by the approving headquarters. If corrective action is beyond the purview or capability of the approving authority, this will be stated. For Block 2a, the approving authority's authentication will be entered.

Block 3. Block 3 is reserved for USASC use and will be completed to show coordination/follow-up taken in response to recommendations requiring DA-level action.

Block 4. Enter the case number as shown on the DA Form 2397–1–R.

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT**PART I - STATEMENT OF REVIEWING OFFICIALS**

For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA

*REQUIREMENTS CONTROL SYMBOL
CSOCS-309*

1. REVIEWING OFFICIALS COMMENTS

2. APPROVING AUTHORITY COMMENTS

a. Signature

3. DEPARTMENT OF ARMY REVIEW

a. Signature

4. CASE
NO.

a. Date (YYMMDD)

b. Time

c. Acft Serial No.

DA Form 2397-1-R; Summary

Completion instructions for DA Form 2397-1-R, Summary

Blocks 1a and 1b. Check the appropriate box to indicate the appropriate classification and category for the accident. Accident classifications and categories are defined in AR 385-40.

Note: Accident classification is based solely on property damage or injury/illness severity; e.g., fatal, permanent partial disability, etc., IAW AR 385-40, not injury cost.)

Block 2. Refer to list below for accident event codes. Select the type event(s) that best categorize(s) the accident and enter code(s) in space(s) provided. More than one event may apply and up to three may be recorded. The event that best describes the accident should be listed first.

| Code | Description |
|-------|--|
| 01 | Precautionary Landing (PL) |
| 02 | Forced landing (FL) |
| 03 | Aborted takeoff |
| 04 | Human factor event |
| 05 | Cargo event |
| 06 | Personnel-handling event |
| 07 | External-stores event |
| 08 | Multiple-aircraft event |
| 09 | Misappropriated aircraft |
| 10 | Drone aircraft |
| 11 | Contractor aircraft accident |
| 12 | Aircraft ground accident |
| 13-19 | (Reserved for future additions.) |
| 20 | Refueling accident |
| 21 | Midair collision |
| 22 | Helocasting |
| 23 | Hard landing |
| 24 | Wheels-up landing |
| 25 | Landing gear collapse/retraction |
| 26 | Undershoot |
| 27 | Overshoot or overrun |
| 28 | Ditching |
| 29 | Ground loop / swerve |
| 30 | Collision with ground/water |
| 31 | Aircraft collision on the ground |
| 32 | Other collisions |
| 33 | Rotor over speed |
| 34 | Fire and/or explosion on the ground |
| 35 | Fire and/or explosion in the air |
| 36 | Equipment loss or dropped object |
| 37 | Inflight breakup |
| 38 | Spin or stall |
| 39 | Abandoned aircraft |
| 40 | Flight-related accident |
| 41 | Instrument meteorological conditions (IMC) |
| 42 | Rappelling |

| | |
|----|--------------------------------------|
| 43 | STABO |
| 44 | Overstress |
| 45 | FOD Incident |
| 46 | Rotor/prop wash |
| 47 | Engine overspeed / overtemp |
| 48 | Brownout |
| 49 | Bird strike |
| 50 | Tree strike |
| 51 | Wire strike |
| 52 | Inflight breakup |
| 53 | Missing aircraft |
| 54 | FOD |
| 55 | Dynamic rollover |
| 56 | MOC |
| 57 | Weapons related |
| 58 | Lightning strike |
| 59 | Rescue operations |
| 60 | Object strike |
| 61 | Air to ground collision |
| 62 | Stump strike |
| 63 | Antenna strike |
| 64 | Engine overtorque/overload |
| 65 | Whiteout |
| 66 | Tiedown strike |
| 67 | Parachute |
| 68 | Mast bumping |
| 69 | Structural icing |
| 70 | Engine failure |
| 71 | Transmission failure |
| 72 | Vertical fin strike |
| 73 | Spike knock |
| 74 | Seatbelt/restraint harness strike |
| 75 | Blade flapping |
| 76 | Fuel exhaustion |
| 77 | Fuel starvation |
| 78 | Animal strike |
| 79 | Battery fire/overheat |
| 80 | Excessive yaw/spin |
| 81 | Tail-boob strike |
| 82 | Airframe |
| 83 | Landing gear |
| 84 | Power train |
| 85 | Drive train |
| 86 | Rotor/propellers |
| 87 | Hydraulics system |
| 88 | Pneumatic system |
| 89 | Instruments |
| 90 | Warning system |
| 91 | Electrical system |
| 92 | Fuel system |
| 93 | Flight control |
| 94 | Utility/environmental control system |
| 95 | Avionics |
| 96 | Cargo-handling equipment |
| 97 | Armament |

Block 3. Check the appropriate box. Dawn is that period of time between beginning morning nautical twilight (BMNT) and official

sunrise. Dusk is that period of time between official sunset and end evening nautical twilight (EENT).

Block 4. Check the appropriate box. Tactical landing zones under positive air traffic control; e.g., Corps instrumented airfield, Division's VFR helipad, stagefields, and support bases are considered "on post" and "on airfield" for reporting purposes. Also, aircraft accidents occurring on joint-use civil airports and on civilian airports with Reserve component facilities are considered "on post" and "on airfield" when there is intent to use the military facilities on that airport; i.e., visit the unit, acquire fuel, conduct training, etc.

Block 5. Enter name of military installation where the accident occurred or the nearest military installation.

Block 6. Enter the number of aircraft that were involved in the accident. Do not include damaged aircraft that were not being operated at the time of the accident. Ensure that the number entered in this block corresponds with the number of DA Forms 2397-1-R submitted with the technical report. Paragraph 3-4 specifies when additional DA Forms 2397-1-R are required.

Block 7. Enter the name of the closest city and state to the accident site. Identify the country if outside the United States.

Block 8. Enter appropriate information for the aircraft addressed by this form. "Organization aircraft assigned" and "UIC" pertain to the organization which has the aircraft in its inventory as recorded in the property records or a hand receipt, whichever is applicable. Enter the installation's name where the aircraft was assigned.

Block 9a. Beginning in the left column under "Organization Involved," enter the six digit UIC and abbreviated titles of the lowest level aviation unit, and chain of command, involved in the accident up through is major command.

Block 9b. If it is determined that an activity other than the involved unit is deemed the accountable for the accident, enter the six digit UIC and abbreviated title of that unit and chain of command up through the major command and explain in the analysis paragraph of DA Form 2397-3-R. If the Unit is the same as listed in Block 9a, leave blank. Further guidance for determining accountability is contained in AR 385-40, paragraph 1-6.

Block 10a. If the aircraft identified in block B was damaged beyond economical repair limits, missing, or abandoned, check the box indicating total loss. Insert the replacement cost of the aircraft obtained from TB 43-0002-3 in the space provided for the aircraft damage cost and leave the spaces for aircraft repair man-hours and cost blank. If the aircraft was repairable, enter in the spaces provided

an estimated material cost of damage, number of man-hours, and a dollar amount for total man-hours to repair the aircraft based on the standard labor rate per hour specified in AR 385-40, paragraph 2-11. Estimated cost of damage and man-hours required to repair the aircraft should be obtained from the organization's support maintenance. When more than one aircraft is damaged and the other aircraft does not meet the "intent for flight" criteria contained in AR 385-40, enter the total dollar cost of damage and man-hours to repair the other aircraft or other military property in the "Other damage mil" space. Report dollar value of civilian property damage; i.e., damaged buildings, destroyed crops, broken utility poles and lines, livestock, etc., in the space "Other damage civ" provided. Report the total dollar value of all injuries, as recorded in Block 19, DA Forms 2397-9-R (Part X - Injury / Occupational / Illness Data). The cost is computed using the standard injury and illness costs contained in Table 2-1, AR 385-40. Injuries or fatalities to non-DOD personnel; i.e., private citizens, are not included in accident injury cost. Show ownership of all damage by entering one of the codes listed below.

| Code | Description |
|------|---|
| A | Active Army |
| B | Army contractor |
| C | Non-Appropriated Fund |
| F | Foreign Government |
| J | Air Force (includes Reserve/NG components) |
| K | Navy (includes Reserve components) |
| L | Marine (includes Reserve components) |
| M | Government, other (e.g., FAA, FBI, Customs, etc.) |
| N | Army National Guard |
| R | Army Reserve |

Block 10b will be completed only for accidents involving a multiple aircraft event. The information will be entered only on the DA Form 2397-1-R applying to the "case aircraft" identified in block 25. The cost entered in block 10b will show the total cost of all aircraft, property damage, injury, and occupational illness attributable to the accident.

Block 11. Check the appropriate box. Two factors are required for an accident to be survivable. Crash forces imposed upon the inhabitable area of the aircraft must be within the limits of human tolerance (see Appendix C), and all portions of the inhabitable area must remain reasonably intact and occupiable. If these criteria are met for at least one, but not all seat/litter positions, the accident is partially survivable. If no seat positions meet the criteria, the accident is non-survivable. Fatal injuries or occupancy of an inhabitable area is not the criteria for determining survivability of an accident.

Block 12. Check the appropriate box to indicate the method or attempted method of inflight escape. This block does not apply to

occupants who fell out of the aircraft or were ejected/thrown out without a parachute. Check “NA” if the crew/aircraft is not equipped with parachutes/ejection seats.

Block 13. For fires beginning before initial impact or breakup of the aircraft, check “inflight.” For fires beginning after the initial crash impact has begun, check “postcrash.” Check both boxes if in-flight and postcrash fires occurred. If “inflight,” “postcrash,” or “other” boxes checked, ensure that a DA Form 2397–12–R is completed. For the purpose of this block, movement of the aircraft under its own power is considered inflight.

Block 14. Check the “yes” block if any occupant had difficulty or required assistance during egress. Leave blank for non-survivable accidents with no survivors.

Block 15. Enter in blocks a, b, and c the total amount of fuel on board within the aircraft fuel system, in pounds, for the times indicated. Enter in block d the type fuel with which the aircraft was last serviced.

Block 16. Check appropriate blocks and record supporting data on appropriate forms.

Block 16a. If “yes,” enter types and quantity in block 9e of DA Form 2397–6–R.

Block 16b. If “yes,” identify the type night visual aid used in block 16b(2). If night visual aids were a factor in the accident, discuss in the findings and “special investigation” portion of the narrative (DA Form 2397–3–R).

Block 16c. Check “yes” if a flight data recorder (FDR) was installed and explain in the narrative portion of the report.

Block 16d. If “yes,” explain and enter name of field training exercise (FTX) in “the preflight phase” of the narrative (DA Form 2397–3–R).

Block 16e. Check “yes” only if heads up display (HUD) was in use at time of accident.

Block 16f. If an emergency locator transmitter (ELT) was in-stalled, check “yes.” Explain any malfunctions in the narrative (DA Form 2397–3–R).

Block 17. Check the appropriate box to indicate under what flight rules the aircraft was being operated at the time of the accident. Check “none” if the aircraft was operated without a flight plan or without being recorded on appropriate flight dispatch records.

Block 18. Use the mission symbols used on the DA Form 2408–12 or as specified below. For maintenance operational checks enter “S.” If none, enter “NA.” If the mission was classified enter “Z.” If the mission symbol is undetermined, enter “U.” Also, check the

appropriate box to indicate if the mission was a single ship or multi-ship operation.

| Code | Description |
|------|--------------------------|
| T | Training |
| S | Service |
| D | Imminent Danger |
| C | Combat |
| F | Functional Test flight |
| A | Acceptance Test Flight |
| X | Experimental Test Flight |

Block 19. Enter numbers of personnel in the appropriate boxes. Columns B–E combine the injuries reported in blocks 1b through 1e of DA Forms 2397–9–R and columns F–G combine those injuries reported in blocks 1f and 1g of DA Forms 2397–9–R. Ensure the number of personnel reported as injured, agrees with the number of injured personnel reported on DA Forms 2397–9–R. Block 19f, “Multiple acft event,” is completed only on the DA Form 2397–1–R for the “case aircraft” when reporting accidents involving multiple aircraft.

Block 20. This block is used to describe the terrain at and around the crash site:

Block 20a. “General characteristics” pertains to the dominant terrain features surrounding the accident site. More than one may apply.

Block 20b. Refers to surface conditions on which the aircraft made its ground run and/or came to final rest. More than one type surface may apply.

Block 20c. Pertains to the terrain grade on which the aircraft came to final rest. If “slope” is checked, specify degrees. Leave blank if not applicable.

Block 20d. Pertains to obstacles located in the vicinity of the accident site that may have influenced the accident. More than one may apply.

Block 21. Flight Data. “Flight duration;” enter hours and tenths of hours; “Phase of operation” enter appropriate code(s) (maximum of three) from the list below. “Overgross” determinations are not in reference to design gross weight, but are in reference to the conditions under which the aircraft was being operated at the time of the accident.

| Code | Description |
|------|---|
| A | Starting engine/run-up |
| B | Stationary (engines running) |
| C | Taxi |
| D | Takeoff |
| E | Hover IGE |
| F | Climb (after takeoff phase and climb to altitude is established) |
| G | Cruise |
| H | Combat maneuver (masking, unmasking, gun run, evasive action, etc.) |

| | |
|---|--|
| I | Descent (does not include approach) |
| J | Approach (prior to landing/termination) |
| K | Emergency auto-rotation |
| L | Go-around (the intended landing/termination is aborted) |
| M | Landing (aircraft touchdown until forward motion stops and aircraft clears runway) |
| N | Low level (constant airspeed and altitude below 500 feet agl) |
| O | Contour (varying altitude, while maintaining constant height above the contour of the earth's surface and/or obstacle) |
| P | NOE (varying airspeed and altitude, using the earth's contour/foilage for concealment) |
| Q | Hover OGE |
| R | Crash (crew has no control over aircraft altitude) |
| S | Aerobatics |
| T | Termination with power (planned/attempted termination of an auto-rotation is to a hover) |
| U | Under-determined/unknown |
| V | Power recovery (the power of returning the aircraft to power; flight from an engine-out configuration) |
| W | Training auto-rotation |
| X | Formation |
| Y | Preflight activity (any activity prior to the flight that caused or contributed to the accident; e.g., mission planning, crew assignment, training, preflight, etc.) |
| Z | Refueling (to identify the type refueling being conducted, use an additional code preceding the Z code; e.g., in-flight refueling should be coded as GZ). |

Block 21a. For planned data, enter the flight parameters that were used during preflight planning for that segment of the mission profile in which the emergency or accident occurred. "Variable" (var) may be used where heading, altitude and airspeed are constantly changing due to mission requirements.

Block 21b. For emergency data, enter the actual flight parameters at the time of the emergency. Note: The use of the term "Emergency" in this pamphlet refers to "any occurrence/situation wherein the personnel involved sense a need to take appropriate measures to reduce the effects of the occurrence/ situation or prevent injury, property damage, or further materiel failure."

Block 21c. For accident or termination data, enter flight parameters at the time when the major impact/accident occurred or accident sequence stops if no major impact occurred (could be same as emergency data).

Block 22. Place a "D," "S," or "U" in the appropriate space provided if personnel, materiel, or environmental factors definitely contributed, are suspected to have contributed, or the role in the accident could not be determined. Identify personnel by duty codes from the list below. It is essential that each entry in block 22 be supported by the findings reported in blocks 1 and 2 of the DA Form 2397-2-R, the analysis portion of the DA Form 2397-3-R, and the cause relationship block

elements checked on DA Forms 2397–7–R (Part IX— Personal Data), 8–R, and 11–R (Part XII—Weather/Environmental Data).

| Code | Description |
|------|--|
| ABC | Aviation battalion commander |
| ADC | Approach/departure controller |
| AMC | Air mission commander |
| AO | Aerial observer |
| AOT | Aerial observer trainee |
| ART | Armament |
| AUC | Aviation unit commander |
| AVT | Avionics technician |
| CE | Crew chief/flight engineer |
| CET | Combat-equipped troops/jumpers |
| CP | Copilot |
| DCO | DA/DOD-level commander / supervisor |
| DEP | Design/engineer personnel |
| FCO | Flight Leader |
| FCT | Weather personnel |
| FFT | Crash rescue/firefighters |
| FI | Engineer instructor |
| FSP | Flight service personnel |
| FTM | Fuel team member |
| FTS | Fuel team supervisor |
| GC | Ground unit commander |
| GCA | Final controller |
| GG | Ground guide/"Follow me" |
| M | General mechanic |
| GSY | Other ground support personnel |
| IE | Instrument flight examiner |
| IP | Instructor pilot |
| LCO | Local commander/supervisor |
| MCO | Major commander/supervisor |
| ME | Maintenance test flight evaluator |
| MFP | Manufacturing/rework personnel |
| MS | Maintenance supervisor |
| MO | Flight surgeon/medical attendant |
| MP | Maintenance test pilot |
| OAY | Others aboard aircraft |
| OGY | Others personnel not aboard aircraft |
| OPN | Operations dispatcher, other operations personnel |
| OR | Gunner/technical observer/maintenance personnel/photographer |
| PAX | Passenger |
| PC | Pilot in command |
| PF | Pathfinder |
| PI | Pilot |
| PPM | Powerplant mechanic |
| PT | Pilot trainee |
| PTM | Power train mechanic |
| PTO | Pilot trainee, observer |
| PTR | Pilot trainee, rated |
| SI | Standardization flight engineer instructor |
| SM | Structure/airframe mechanic |
| SP | Standardization instructor pilot |
| TI | Technical Inspector |
| TWC | Tower personnel |
| UNK | Unknown |
| UT | Unit trainer |

| | |
|----|-------------------------|
| XP | Experimental test pilot |
| ZR | Rated passenger |

Block 23. Enter a concise summary of the accident sequence of events from the first indication of the emergency through termination of the accident sequence. Avoid conclusions of the investigation as to cause of the accident. Continue on letter-size bond paper as necessary; however, do not exceed a total of 15 lines of typewritten information.

Block 24. The aviation safety officer (ASO) of the unit involved in the accident will normally review the completed report and sign in this block. The ASO's signature does not indicate or imply his concurrence or nonconcurrence with the report but only that he has reviewed and is aware of the contents of the report.

Block 25. Enter the case number. The case number is a 17-digit numerical entry consisting of a 6-digit date (Block 24a), 4-digit hour of the day (Block 24b), and the 7-digit tail number the aircraft (Block 24c) that will be placed on each form of the DA Form 2397-R series accompanying the report, as indicated in table 3-6.

Block 26. If the accident involves a multiple aircraft event, block 26 will be completed only on the DA Forms 2397-1-R, addressing aircraft other than the "case aircraft." Leave blank if it is a single aircraft accident.

| TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT PART II - SUMMARY <small>For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA</small> | | | | | | | | | | REQUIREMENTS CONTROL SYMBOL CSOCS-309 | | | | | |
|---|--|-------------------------|---|--|---|--|--|---|-----------|---|--------------------|-----------------|-----------------|------------------|--|
| 1. a. Classification <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C | | | b. Category <input type="checkbox"/> Flight <input type="checkbox"/> Flight Related | | | 2. TYPE EVENTS | | a. | b. | c. | | | | | |
| 3. PERIOD OF DAY <input type="checkbox"/> Dawn <input type="checkbox"/> Day <input type="checkbox"/> Dusk <input type="checkbox"/> Night | | | 4. a. On Post <input type="checkbox"/> Yes <input type="checkbox"/> No | | | b. On Airfield <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | | | | | | |
| 5. NEAREST MIL INSTALLATION | | | | | | 6. NO. OF ACFT INVOLVED | | | | | | | | | |
| 7. LOCATION | | a. City: | | | b. State: | | c. Country: | | | | | | | | |
| 8. a. Acft MTDS: | | b. (1) Orgn Acft Asgd: | | | (2) UIC: | | c. Instal Acft Asgd: | | | | | | | | |
| 9. ORGN/CHAIN OF CMD INVOLVED AND ACCOUNTABLE | | | | | | | | | | | | | | | |
| a. ORGN/Chain of CMD Involved | | Orgn Involved | | Chain of Cmd | | Chain of Cmd | | Chain of Cmd | | MACOM | | | | | |
| | | (1) Unit | | | | | | | | | | | | | |
| | | (2) UIC | | | | | | | | | | | | | |
| b. ORGN/Chain of CMD Accountable | | Orgn Accountable | | Chain of Cmd | | Chain of Cmd | | Chain of Cmd | | MACOM | | | | | |
| | | (1) Unit | | | | | | | | | | | | | |
| | | (2) UIC | | | | | | | | | | | | | |
| 10. a. Estimated Cost <input type="checkbox"/> Total Loss | | | | 11. SURVIVABILITY <input type="checkbox"/> Survivable <input type="checkbox"/> Partially Survivable <input type="checkbox"/> Nonsurvivable <input type="checkbox"/> Acft Missing | | 12. IN-FLT ESCAPE <input type="checkbox"/> Ejection <input type="checkbox"/> Bailout <input type="checkbox"/> Not Accomplished <input type="checkbox"/> NA | | 13. FIRE <input type="checkbox"/> None <input type="checkbox"/> Inflight <input type="checkbox"/> Post-crash <input type="checkbox"/> Other | | 14. POSTCRASH ESCAPE DIFFICULTIES <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA | | | | | |
| (1) Acft Damage Cost | | \$ | | | | | | | | | Owner | | | | |
| (2) Repair M/Hrs Cost | | \$ | | | | | | | | | No. M/Hrs | | | | |
| (3) Other Damage Mil | | \$ | | | | | | | | | Owner | | | | |
| (4) Other Damage Civ | | \$ | | | | | | | | | Owner | | | | |
| (5) Injury Cost | | \$ | | | | | | | | | | | | | |
| (6) Total Cost This Acft | | \$ | | | | | | | | | | | | | |
| b. Total Cost Multiple Acft | | \$ | | | | | | | | | | | | | |
| 16. GENERAL DATA | | | Yes | No | 17. Flight Plan <input type="checkbox"/> VFR <input type="checkbox"/> IFR <input type="checkbox"/> None <input type="checkbox"/> NA | 18. MISSION a. Type b. Operations <input type="checkbox"/> Single-ship <input type="checkbox"/> Multi-ship | 19. INJURIES (Number) a. Occupants Military b. Occupants Other c. Non-Occupants Mil d. Non-Occupants e. Total This Acft f. Multiple Acft Event | | Fatal (A) | Disabling (B - E) | Nondisabling (F-G) | Missing (H) | Not injured (J) | | |
| a. Flammable Fluid Spillage | | | | | | | | | | | | | | | |
| b. (1) Night Visual Aids Used | | | | | | | | | | | | | | | |
| (2) Specify Type | | | | | | | | | | | | | | | |
| c. Flt Data Recorder Installed | | | | | | | | | | | | | | | |
| d. Field Training Exercise Involved | | | | | | | | | | | | | | | |
| e. Heads-Up Display In Use | | | | | | | | | | | | | | | |
| f. Emergency Locator Transmitter Installed | | | | | | | | | | | | | | | |
| 20. TERRAIN OF CRASH SITE (More than one may apply) | | | | | | | | | | | | | | | |
| a. General Characteristics <input type="checkbox"/> Mountain <input type="checkbox"/> Desert <input type="checkbox"/> Rolling <input type="checkbox"/> Flat | | | | b. Surface at Crash Site <input type="checkbox"/> Prepared <input type="checkbox"/> Ice <input type="checkbox"/> Sod <input type="checkbox"/> Snow <input type="checkbox"/> Soggy | | | | | | | | | | | |
| <input type="checkbox"/> Water | | | | <input type="checkbox"/> Water | | | | | | | | | | | |
| c. Crash Site Grade <input type="checkbox"/> Level <input type="checkbox"/> Slope | | | | d. Obstacles at Crash Site <input type="checkbox"/> Stumps <input type="checkbox"/> Trees <input type="checkbox"/> Bldg <input type="checkbox"/> Wires <input type="checkbox"/> Rocks/Boulders | | | | | | | | | | | |
| Degrees | | | | <input type="checkbox"/> Other | | | | | | | | | | | |
| 21. FLIGHT DATA | | Flight Duration | | Phase of Operation | | Altitude | | Airspeed KIAS | | Heading (Compass) | | Aircraft Weight | | Overgross Yes No | |
| | | | | | | AGL MSL | | | | | | | | | |
| a. Planned Data | | Hr Tns | | | | | | | | | | | | | |
| b. When Emergency Occurred | | Hr Tns | | | | | | | | | | | | | |
| c. Accident or Termination | | Hr Tns | | | | | | | | | | | | | |
| 22. ACCIDENT CAUSE FACTORS (Enter a D, S, or U in appropriate blocks to identify definite, suspected, or undetermined causes) | | | | | | | | | | | | | | | |
| a. Personnel | | | | D, S, or U | | Personnel (Continued) | | | | D, S, or U | | | | | |
| (1) Flight Crew: Duty | | | | | | (3) Supervisory Duty | | | | | | | | | |
| Duty | | | | | | Duty | | | | | | | | | |
| Duty | | | | | | (8) Other Duty | | | | | | | | | |
| (2) Ground Crew: Duty | | | | | | b. Materiel Failure/Malfunction | | | | | | | | | |
| Duty | | | | | | c. Environmental | | | | | | | | | |
| 23. SEQUENCE (Factual accident sequence from onset of emergency through termination of flight. Use additional sheet if required.) | | | | | | | | | | | | | | | |
| 24. AVN SAFETY OFFICER | | a. Name, Rank, and Orgn | | | | | | b. Signature | | | | | | | |
| 25. CASE NO. | | a. Date (YYMMDD) | | b. Time | | c. Acft Serial No. | | | | 26. OTHER ACFT SERIAL NO. | | | | | |

DA Form 2397-2-R; Findings and Recommendations

Completion instructions for DA Form 2397–2–R, Findings and Recommendations

Block 1. Instructions for narratively reporting findings and recommendations. Each cause-related finding must be substantiated by the written analysis portion of DA Form 2397–3–R. As a minimum, the following elements of information will be reported for each finding in the order stated.

Findings

1. An explanation of when and where the error, materiel failure, or environmental factor occurred in the context of the accident sequence of events; e.g., “during preflight,” “takeoff,” “while driving,” “while employing,” etc.
2. Identification of the individual involved by duty position; or the name and part number or national stock number (NSN) of the part, component, or system that failed; or a description of the environmental factor, as appropriate.
3. For human error, identification of the task or function the individual was performing and an explanation of how it was performed improperly. Refer to appendix B for mistake/error categories. The error could be one of commission or omission; e.g., an individual performed the wrong task, incorrectly performed the correct task, or failed to perform a required task or function. In the case of a materiel failure, identify the mode of failure; e.g., corroded, burst, twisted, decayed, etc.
4. Identification of the directive (i.e. ATM, SOP, FM) or common practice governing the performance of the task or function. In lieu of a written directive, the error may represent performance that is contrary to common practice.
5. An explanation of the consequences of the error, materiel failure, or environmental effect. An error may directly result in damage to equipment or injury to personnel, or it may indirectly lead to the same end result. A materiel failure may have an immediate effect on equipment or its performance, or it may create circumstances that cause errors resulting in further damage/injury inevitable.
6. Identification of the reasons (system inadequacy(ies)) the human, materiel, environmental conditions caused or contributed to the accident. Refer to the list and examples of system inadequacy(ies) provided in appendix B.

7. A brief explanation of how each reason contributed to the error, materiel failure, or environmental factor.
8. Instructions for reporting findings that did not cause or contribute to the accident, but did adversely affect the severity of the accident results. The board should report those factors that contributed to the severity of injury or extent of damage. Personnel injuries attributable to defects in life support equipment, personnel protective clothing and equipment or crashworthiness design should also be summarized as findings in this category. Injuries sustained from failure to use provided equipment, i.e., seat belts, must be also be addressed. The findings and recommendations fitting this category will be separated from those that caused the accident and will be preceded by the following statement: THE FINDING(S) LISTED BELOW DID NOT DIRECTLY CONTRIBUTE TO THE CAUSAL FACTORS INVOLVED IN THIS ACCIDENT; HOWEVER, IT (THEY) DID CONTRIBUTE TO THE (SEVERITY OF INJURIES) OR (ACCIDENT DAMAGES).
9. Instructions for reporting findings that did not cause or contribute to the accident nor to the severity of injuries. The board should report errors, materiel failures, or other hazards that did not contribute to the accident but have a high potential for causing other accidents or adversely affecting the safety of aviation operations if not corrected. Reporting these deficiencies will ensure they receive the attention of commanders throughout the chain of command to include Department of the Army staff safety personnel. The findings and recommendations fitting this category will be separated from those that caused the accident, those that did not cause the accident but contributed to the severity of injuries, and will be preceded by the following statement: THE FINDING(S) LISTED BELOW DID NOT CONTRIBUTE TO THIS ACCIDENT. HOWEVER, IF LEFT UNCORRECTED, IT (THEY) COULD ADVERSELY AFFECT THE SAFETY OF AVIATION OPERATIONS.

Recommendations. Each finding will be followed by recommendations having the best potential for correcting or eliminating the reasons (system inadequacy(ies) for the error, materiel failure, or environmental factor that caused or contributed to the accident. Recommendations will not focus on punitive steps addressing an individual's failure in a particular case. To be effective at preventing accidents in the future, recommendations must be stated in broader terms. Refer to the list of remedial measures in appendix B. The board should not allow the recommendation to be overly influenced by existing budgetary, material, or personnel restrictions. In developing the recommendations, the board should view each

recommendation in terms of its potential effectiveness; i.e., design improvement of a part that has a history of recurring failure is a better solution than recommending procedures to accommodate the deficiency. Each recommendation will be directed at the unit, command, or activity having proponentcy for and which is best capable of implementing the actions contained in the recommendation. The actions required at unit level, higher level, and Department of the Army levels of command will be addressed by each recommendation. If one or more of these three command levels had no action requirement, a negative report is required; e.g., "Department of the Army" level actions: None. "Unit level," "Higher level," and "Department of the Army" levels of action, as used in this context, respectively refer to the unit deemed most responsible for the accident: the unit's chain of command, up to and including major Army command (MACOM), and DA-level activities. In cases where a MACOM is the highest level proponent for a recommended action having Army-wide application, the MACOM will be listed in the "Department of the Army level" category.

Block 2. Enter a coded summary of the findings and recommendations to include duty, role, phase of operation, mistake/errors, aircrew training manual (ATM) tasks, system inadequacy(ies). Blocks 2a, 2b, and 2c pertain to personnel error, block 2d pertains to materiel failure or malfunction, and block 2e pertains to environmental effects or influence. All entries in block 2 will be consistent with and supported by the findings reported in block 1.

Block 2a(1), Duty. Enter the code for the individual's duty position at the time the mistake/error was made. Refer to list below for codes to be used.

| Code | Description |
|------|-------------------------------------|
| ABC | Aviation battalion commander |
| ADC | Approach/departure controller |
| AMC | Air mission commander |
| AO | Aerial observer |
| AOT | Aerial observer trainee |
| ART | Armament |
| AUC | Aviation unit commander |
| AVT | Avionics technician |
| CE | Crew chief/flight engineer |
| CET | Combat-equipped troops/jumpers |
| CP | Copilot |
| DCO | DA/DOD-level commander / supervisor |
| DEP | Design/engineer personnel |
| FCO | Flight Leader |
| FCT | Weather personnel |
| FFT | Crash rescue/firefighters |
| FI | Engineer instructor |
| FSP | Flight service personnel |
| FTM | Fuel team member |
| FTS | Fuel team supervisor |

| | |
|-----|--|
| GC | Ground unit commander |
| GCA | Final controller |
| GG | Ground guide/"Follow me" |
| M | General mechanic |
| GSY | Other ground support personnel |
| IE | Instrument flight examiner |
| IP | Instructor pilot |
| LCO | Local commander/supervisor |
| MCO | Major commander/supervisor |
| ME | Maintenance test flight evaluator |
| MFP | Manufacturing/rework personnel |
| MS | Maintenance supervisor |
| MO | Flight surgeon/medical attendant |
| MP | Maintenance test pilot |
| OAY | Others aboard aircraft |
| OGY | Others personnel not aboard aircraft |
| OPN | Operations dispatcher, other operations personnel |
| OR | Gunner/technical observer/maintenance personnel/photographer |
| PAX | Passenger |
| PC | Pilot in command |
| PF | Pathfinder |
| PI | Pilot |
| PPM | Powerplant mechanic |
| PT | Pilot trainee |
| PTM | Power train mechanic |
| PTO | Pilot trainee, observer |
| PTR | Pilot trainee, rated |
| SI | Standardization flight engineer instructor |
| SM | Structure/airframe mechanic |
| SP | Standardization instructor pilot |
| TI | Technical Inspector |
| TWC | Tower personnel |
| UNK | Unknown |
| UT | Unit trainer |
| XP | Experimental test pilot |
| ZR | Rated passenger |

Block 2a(2), Role. Check "D" for definite, or "S" for suspected to indicate the contributing role of this individual.

Block 2a(3), Phase of Operation. Enter the code for the phase of operation that was in progress at the time the mistake/error occurred (may be different from emergency or accident phase of operation). Refer to list below for codes to be used.

| Code | Description |
|------|---|
| A | Starting engine/run-up |
| B | Stationary (engines running) |
| C | Taxi |
| D | Takeoff |
| E | Hover IGE |
| F | Climb (after takeoff phase and climb to altitude is established) |
| G | Cruise |
| H | Combat maneuver (masking, unmasking, gun run, evasive action, etc.) |
| I | Descent (does not include approach) |
| J | Approach (prior to landing/termination) |
| K | Emergency auto-rotation |

| | |
|---|--|
| L | Go-around (the intended landing/termination is aborted) |
| M | Landing (aircraft touchdown until forward motion stops and aircraft clears runway) |
| N | Low level (constant airspeed and altitude below 500 feet agl) |
| O | Contour (varying altitude, while maintaining constant height above the contour of the earth's surface and/or obstacle) |
| P | NOE (varying airspeed and altitude, using the earth's contour/foilage for concealment) |
| Q | Hover OGE |
| R | Crash (crew has no control over aircraft altitude) |
| S | Aerobatics |
| T | Termination with power (planned/attempted termination of an auto-rotation is to a hover) |
| U | Under-determined/unknown |
| V | Power recovery (the power of returning the aircraft to power; flight from an engine-out configuration) |
| W | Training auto-rotation |
| X | Formation |
| Y | Preflight activity (any activity prior to the flight that caused or contributed to the accident; e.g., mission planning, crew assignment, training, preflight, etc.) |
| Z | Refueling (to identify the type refueling being conducted, use an additional code preceding the Z code; e.g., in-flight refueling should be coded as GZ). |

Block 2a(4), ATM Task. Enter the ATM task number being performed at time the mistake/error was made. Enter "NA" if no ATM Task applies.

Block 2a(5), Mistake/error. In the space provided, enter the code of the mistake/error that best categorizes the error made by this individual.

| Code | Description |
|--|---|
| Personal Errors | |
| P01 | Scan |
| P02 | Maintain/recover orientation |
| P03 | Inflight planning |
| P04 | Preflight planning |
| P05 | Estimate distance/closure/control input |
| P06 | Detect hazards/obstacles |
| P07 | Diagnose or respond to an emergency |
| P08 | Coordination |
| P09 | Failed to use or follow checklist |
| P10 | Failed to follow maintenance manual (TM, SOP, TB, etc.), instructions while servicing acft/equip |
| P11 | Failed to follow instructions (TM, TB, MWO, etc.) while repairing, installing, or adjusting equipment |
| P12 | Inadequate/improper inspection |
| P13 | Failed to read/follow available SOPs, notices, ARs, general rules/principles, etc |
| P14 | Inadequate tool/equip accountability |
| P15 | Failed to secure materiel/equip/cargo |
| P16 | Inadequate/improper LZ/termination point selection |
| P17 | Improperly prepared LZ |
| Supervisor – Specific Mistakes/Errors | |
| P18 | Improper mix/match/number of personnel |
| P19 | Inadequate time allowed for pre-mission preparation |

| | |
|-----|---|
| P20 | Set/permitted inappropriate launch time for environmental conditions |
| P21 | Permitted selection of inappropriate LZ for intended training or crew experience |
| P22 | Failed to insure repairs/services/inspections/MWO are IAW appropriate TMs, TB, MWOs, etc. |
| P23 | Failed to take appropriate/timely action to prevent or stop violation of procedures/unsafe acts |
| P24 | Inadequate mission planning for risk-management, operational, and logistic decisions |
| P25 | Failed to brief/provide information |
| P97 | Insufficient information to determine mistake/error |

System inadequacy(ies). In the spaces provided, enter the numerical codes of the system inadequacy(ies) that caused or permitted the mistake/error to become an accident cause factor. If there are more than three system inadequacy(ies) associated with the first mistake/error, skip the second duty and mistake/error entries and continue to list the additional system inadequacy(ies) spaces.

| Code | Description |
|-------------------|---|
| Leader | |
| 01 | Inadequate or improper supervision by higher command |
| 02 | Inadequate or improper supervision by management staff. |
| 03 | Inadequate or improper supervision by departmental managers |
| 04 | Inadequate or improper supervision by direct supervisor |
| Training | |
| 05 | Inadequate school training |
| 06 | Inadequate organization/on-the-job training |
| 07 | Inadequate experience |
| 08 | Habit interference |
| Standards | |
| 09 | Inadequate written standards |
| Support | |
| 10 | Inadequate facilities or services |
| 11 | Inadequate or improper equipment design or equipment not provided |
| 12 | Insufficient number or type of personnel |
| 13 | Inadequate quality control, manufacture, packaging, or assembly |
| 14 | Inadequate maintenance |
| Individual | |
| 15 | Fear, Excitement, or Anger (inadequate composure) |
| 16 | Overconfidence or complacency in abilities |
| 17 | Lack of confidence |
| 18 | Haste or Attitude (poor motivation) |
| 19 | Fatigue (self-induced) |
| 20 | Effects of alcohol, drugs, illness |
| 21 | Environment conditions |
| 97 | Insufficient information to determine system inadequacy or cause |

Remedial measures. In the spaces provided to the right of each system inadequacy(ies), enter the codes for the remedial measures selected to correct that specific system inadequacy.

| Code | Description |
|------|--|
| 01 | Improve school training. |
| 02 | Improve unit training. |
| 03 | Revise procedures for operation under normal or abnormal/emergency conditions. |

| | |
|----|---|
| 04 | Ensure personnel are ready to perform. |
| 05 | Inform personnel of problems and remedies. |
| 06 | Positive command action. |
| 07 | Provide personnel resources required for the job. |
| 08 | Redesign (or provide) equipment or materiel. |
| 09 | Improve (or provide) facilities or services. |
| 10 | Improve quality control. |
| 11 | Perform studies to get solution to root cause. |

Continue the entries in blocks 2a, b, and c until all personnel who made errors causing or contributing to the accident, specified in the findings of block 1 above, have been coded. If number of entries exceeds space available, use blocks 2a, b, and c of an additional DA Form 2397–2–R to continue entries. For each duty code entered in blocks 2a, b, and c, ensure that a DA Form 2397–8–R is completed for each individual.

Block 2d, Materiel. An entry is required for all materiel failure/malfunction(s) that caused or contributed to the accident. If more than one materiel failure was involved, use block 2d of an additional DA Form 2397–2–R to continue entries.

Block 2d(1), Role. Check “D” for definite, or “S” for suspected to indicate the materiel role in the accident.

Block 2d(2), Phase of Operation. Enter the code for the phase of operation that was in progress at the time of failure/malfunction. Refer to list below for codes to be used.

| Code | Description |
|------|--|
| A | Starting engine/run-up |
| B | Stationary (engines running) |
| C | Taxi |
| D | Takeoff |
| E | Hover IGE |
| F | Climb (after takeoff phase and climb to altitude is established) |
| G | Cruise |
| H | Combat maneuver (masking, unmasking, gun run, evasive action, etc.) |
| I | Descent (does not include approach) |
| J | Approach (prior to landing/termination) |
| K | Emergency auto-rotation |
| L | Go-around (the intended landing/termination is aborted) |
| M | Landing (aircraft touchdown until forward motion stops and aircraft clears runway) |
| N | Low level (constant airspeed and altitude below 500 feet agl) |
| O | Contour (varying altitude, while maintaining constant height above the contour of the earth's surface and/or obstacle) |
| P | NOE (varying airspeed and altitude, using the earth's contour/foilage for concealment) |
| Q | Hover OGE |
| R | Crash (crew has no control over aircraft altitude) |
| S | Aerobatics |
| T | Termination with power (planned/attempted termination of an auto-rotation is to a hover) |
| U | Under-determined/unknown |
| V | Power recovery (the power of returning the aircraft to power; flight from |

| | |
|---|--|
| | an engine-out configuration) |
| W | Training auto-rotation |
| X | Formation |
| Y | Preflight activity (any activity prior to the flight that caused or contributed to the accident; e.g., mission planning, crew assignment, training, preflight, etc.) |
| Z | Refueling (to identify the type refueling being conducted, use an additional code preceding the Z code; e.g., in-flight refueling should be coded as GZ). |

Block 2d(3), Failed Part Number. Enter the manufacturer's part number. The number should coincide with the part number listed in block 3c of DA Form 2397-7-R.

Block 2d(4), Failure code. Enter the code that best describes the material failure category.

| Code | Description |
|-------------------------------------|--|
| Materiel Failure/Malfunction | |
| M01 | Overheated/burned/melted |
| M02 | Froze (temperature) |
| M03 | Obstructed/pinched/clogged |
| M04 | Vibrated |
| M05 | Rubber/worn/frayed |
| M06 | Corroded/rusted/pitted |
| M07 | Overpressured/burst |
| M08 | Pulled/stretched |
| M09 | Twisted/torqued |
| M10 | Compressed/hit/punctured |
| M11 | Bent/warped |
| M12 | Sheared/cut |
| M13 | Decayed/decomposed |
| M14 | Electric current action (short, arc, surge, etc.) |
| M97 | Insufficient information reported to identify type of failure/ malfunction |

System inadequacy(ies). Enter the codes of the system in-adequacy(ies) that cause or permitted the materiel failure/malfunction to become an accident cause factor. If system inadequacy(ies) identifying improper maintenance are selected, such as system inadequacies 13 and 14, and the duty code of the individual(s) can be identified, a resultant finding should be written as a mistake/error and considering the failure/malfunction as a result of the mistake/error instead of a materiel failure. The mistake/error would then be recorded in block 2a, b, and/or c.

| Code | Description |
|-----------------|---|
| Leader | |
| 01 | Inadequate or improper supervision by higher command |
| 02 | Inadequate or improper supervision by management staff. |
| 03 | Inadequate or improper supervision by departmental managers |
| 04 | Inadequate or improper supervision by direct supervisor |
| Training | |
| 05 | Inadequate school training |
| 06 | Inadequate organization/on-the-job training |
| 07 | Inadequate experience |
| 08 | Habit interference |

| Standards | |
|------------|---|
| 09 | Inadequate written standards |
| Support | |
| 10 | Inadequate facilities or services |
| 11 | Inadequate or improper equipment design or equipment not provided |
| 12 | Insufficient number or type of personnel |
| 13 | Inadequate quality control, manufacture, packaging, or assembly |
| 14 | Inadequate maintenance |
| Individual | |
| 15 | Fear, Excitement, or Anger (inadequate composure) |
| 16 | Overconfidence or complacency in abilities |
| 17 | Lack of confidence |
| 18 | Haste or Attitude (poor motivation) |
| 19 | Fatigue (self-induced) |
| 20 | Effects of alcohol, drugs, illness |
| 21 | Environment conditions |
| 97 | Insufficient information to determine system inadequacy or cause |

Remedial measures Enter codes for remedies in the spaces located to the right of each system inadequacy(ies).

| Code | Description |
|------|--|
| 01 | Improve school training. |
| 02 | Improve unit training. |
| 03 | Revise procedures for operation under normal or abnormal/emergency conditions. |
| 04 | Ensure personnel are ready to perform. |
| 05 | Inform personnel of problems and remedies. |
| 06 | Positive command action. |
| 07 | Provide personnel resources required for the job. |
| 08 | Redesign (or provide) equipment or materiel. |
| 09 | Improve (or provide) facilities or services. |
| 10 | Improve quality control. |
| 11 | Perform studies to get solution to root cause. |

Block 2e, Environmental. This block is to summarize environmental conditions that had an adverse affect on human or equipment performance as related to the accident. Examples include unpredictable weather phenomena (wind/turbulence) resulting in airframe damage; unsuitable work surface/space (unavoidable ditching in ocean or having to land in trees during forced landing); bird strikes damaging aircraft; illumination (too much or too little), etc. For the environment to be considered to have caused or contributed to an accident, it must have been avoidable or unknown at the time of the accident. If the environment does not meet the criteria, a mistake/error of failure to compensate for known or suspected conditions must be considered. If more than one environmental factor was involved, use block 2e of an additional DA Form 2397–2–R to continue entries.

Block 2e(1), Role. Check “D” for definite, or “S” suspected to indicate the environmental role in the accident.

Block 2e(2), Phase of operation. Enter the code for the phase of operation that was in progress at the time the environmental factor caused or contributed to the accident.

| Code | Description |
|------|--|
| A | Starting engine/run-up |
| B | Stationary (engines running) |
| C | Taxi |
| D | Takeoff |
| E | Hover IGE |
| F | Climb (after takeoff phase and climb to altitude is established) |
| G | Cruise |
| H | Combat maneuver (masking, unmasking, gun run, evasive action, etc.) |
| I | Descent (does not include approach) |
| J | Approach (prior to landing/termination) |
| K | Emergency auto-rotation |
| L | Go-around (the intended landing/termination is aborted) |
| M | Landing (aircraft touchdown until forward motion stops and aircraft clears runway) |
| N | Low level (constant airspeed and altitude below 500 feet agl) |
| O | Contour (varying altitude, while maintaining constant height above the contour of the earth's surface and/or obstacle) |
| P | NOE (varying airspeed and altitude, using the earth's contour/foilage for concealment) |
| Q | Hover OGE |
| R | Crash (crew has no control over aircraft altitude) |
| S | Aerobatics |
| T | Termination with power (planned/attempted termination of an auto-rotation is to a hover) |
| U | Under-determined/unknown |
| V | Power recovery (the power of returning the aircraft to power; flight from an engine-out configuration) |
| W | Training auto-rotation |
| X | Formation |
| Y | Preflight activity (any activity prior to the flight that caused or contributed to the accident; e.g., mission planning, crew assignment, training, preflight, etc.) |
| Z | Refueling (to identify the type refueling being conducted, use an additional code preceding the Z code; e.g., in-flight refueling should be coded as GZ). |

Block 2e(3), Environmental code. Enter the code for the environmental factor.

| Code | Description |
|--|--|
| Environmental Effects/Condition | |
| E01 | Illumination (dark, glare, etc.) |
| E02 | Precipitation (rain, fog, ice, snow, etc.) |
| E03 | Contaminants (fumes, dust, chemicals, FOD, etc.) |
| E04 | Noise |
| E05 | Temperature/humidity |
| E06 | Wind turbulence |
| E07 | Vibration |
| E08 | Acceleration/deceleration |
| E09 | Radiation (sunlight, X-ray, LASER, etc.) |
| E10 | Work surface/space (slippery floor, cluttered walkway, steep rough road, etc.) |
| E11 | Air pressure (explosion, decompression, altitude effects, etc.) |

| | |
|-----|--|
| E12 | Electricity (lightning, arc, surge, short, shock, etc.) |
| E13 | Animals (deer, birds, rodents, insects, etc.) |
| E97 | Insufficient information reported to identify environmental conditions |

System inadequacy(ies). Enter the codes of the system inadequacy(ies) that caused or permitted the environmental factor to become an accident cause.

| Code | Description |
|-------------------|---|
| Leader | |
| 01 | Inadequate or improper supervision by higher command |
| 02 | Inadequate or improper supervision by management staff. |
| 03 | Inadequate or improper supervision by departmental managers |
| 04 | Inadequate or improper supervision by direct supervisor |
| Training | |
| 05 | Inadequate school training |
| 06 | Inadequate organization/on-the-job training |
| 07 | Inadequate experience |
| 08 | Habit interference |
| Standards | |
| 09 | Inadequate written standards |
| Support | |
| 10 | Inadequate facilities or services |
| 11 | Inadequate or improper equipment design or equipment not provided |
| 12 | Insufficient number or type of personnel |
| 13 | Inadequate quality control, manufacture, packaging, or assembly |
| 14 | Inadequate maintenance |
| Individual | |
| 15 | Fear, Excitement, or Anger (inadequate composure) |
| 16 | Overconfidence or complacency in abilities |
| 17 | Lack of confidence |
| 18 | Haste or Attitude (poor motivation) |
| 19 | Fatigue (self-induced) |
| 20 | Effects of alcohol, drugs, illness |
| 21 | Environment conditions |
| 97 | Insufficient information to determine system inadequacy or cause |

Remedial measures. Enter remedial measure codes in the spaces located to the right of each system inadequacy(ies).

| Code | Description |
|------|--|
| 01 | Improve school training. |
| 02 | Improve unit training. |
| 03 | Revise procedures for operation under normal or abnormal/emergency conditions. |
| 04 | Ensure personnel are ready to perform. |
| 05 | Inform personnel of problems and remedies. |
| 06 | Positive command action. |
| 07 | Provide personnel resources required for the job. |
| 08 | Redesign (or provide) equipment or materiel. |
| 09 | Improve (or provide) facilities or services. |
| 10 | Improve quality control. |
| 11 | Perform studies to get solution to root cause. |

Block 3. Enter the case number as shown on the DA Form 2397-1-R.

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT

PART III - FINDINGS AND RECOMMENDATIONS

For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA

REQUIREMENTS CONTROL SYMBOL

CSOCS-309

1. FINDINGS AND RECOMMENDATIONS *(attach additional sheet, if required)*

2. CODED SUMMARY OF ACCIDENT FINDINGS, SYSTEM INADEQUACIES, AND RECOMMENDATIONS

| a. Personnel | | (5) Mistake/Error Code | System Inadequacies | | Remedial Measures/Recommendations | | | |
|--|--|------------------------|---------------------|--|-----------------------------------|---|---|--|
| (1) Duty | (2) Role <input type="checkbox"/> D <input type="checkbox"/> S | | 1 | | 1 | 2 | 3 | |
| (3) Phase of Operation | (4) ATM Task No. | | 2 | | 1 | 2 | 3 | |
| | | | 3 | | 1 | 2 | 3 | |
| b. Personnel | | (5) Mistake/Error Code | | | | | | |
| (1) Duty | (2) Role <input type="checkbox"/> D <input type="checkbox"/> S | | 1 | | 1 | 2 | 3 | |
| (3) Phase of Operation | (4) ATM Task No. | | 2 | | 1 | 2 | 3 | |
| | | | 3 | | 1 | 2 | 3 | |
| c. Personnel | | (5) Mistake/Error Code | | | | | | |
| (1) Duty | (2) Role <input type="checkbox"/> D <input type="checkbox"/> S | | 1 | | 1 | 2 | 3 | |
| (3) Phase of Operation | (4) ATM Task No. | | 2 | | 1 | 2 | 3 | |
| | | | 3 | | 1 | 2 | 3 | |
| d. Materiel | | (4) Failure Code | | | | | | |
| (1) Role <input type="checkbox"/> D <input type="checkbox"/> S | (2) Phase of Operation | | 1 | | 1 | 2 | 3 | |
| (3) Failed Part Number | | | 2 | | 1 | 2 | 3 | |
| | | | 3 | | 1 | 2 | 3 | |
| e. Environmental | | (3) Condition Code | | | | | | |
| (1) Role <input type="checkbox"/> D <input type="checkbox"/> S | (2) Phase of Operation | | 1 | | 1 | 2 | 3 | |
| | | | 2 | | 1 | 2 | 3 | |
| | | | 3 | | 1 | 2 | 3 | |
| 3. CASE NO. | a. Date (YYMMDD) | b. Time | c. Acft Serial No. | | | | | |

DA Form 2397-3-R; Narrative

Completion instructions for DA Form 2397–3–R, Narrative

Block 1. Narrative account of investigation. The board will report, in narrative form, the facts, conditions, and circumstances as established during the investigation and present this information in four sections (history of flight, human factors, materiel factors and analysis). The first three sections will contain factual data. The analysis section is reserved for the board's documentation of its conclusions/ opinions concerning the accident cause relationships. Chapter 2, paragraph 2–8, explains procedures for development of formal written analysis. Additional subheadings may be added as deemed necessary. It is important that the narrative address all of the chronological events and evidence that had a bearing on the cause of the accident and/or have the potential for adversely affecting safety of future operations. For accidents in which the investigation board determines that human error, materiel failure/malfunction or environmental conditions were a factor, that portion of the narrative will be completed in its entirety, as specified in the instructions below. The history of flight, personnel background, personnel management, meteorological, air-worthiness, laboratory analysis, and analysis portions will be completed for all accidents. For the remaining subheadings which the investigation board determines were not a factor, enter after the sub-heading "Investigation revealed not a factor" and proceed to the next subheading. Opinions concerning the accident cause relationship of evidence cited throughout the narrative will be discussed only in the analysis section. Use letter-size paper for continuation sheets as required.

1. History of the flight.
 - a. The preflight phase. Report type of mission involved, its purpose, how the unit became tasked with the mission and who or what activity authorized it. Identify the crewmembers selected for the mission by duty assigned and crewmember station, and indicate when and how they were informed of the mission. Describe the actions of the crew-members in preparing for the mission to include preflight planning, weight and balance determinations, briefings, filing flight plan, inspecting aircraft, etc. Describe facts which may indicate whether or not a sense of urgency was associated with the mission and if there were any delays prior to flight departure.
 - b. The flight phase. Indicate when the aircraft departed on the mission. If the mission involved more than one routine flight segment and there were interim ground stops before the accident occurred, concisely summarize these events until

addressing the flight segment involving the accident. If the flight segment involving the accident contained an in-flight emergency, give a detailed description of the onset of the emergency to include where and when it occurred, symptoms, warnings, instrument readings, etc. Also, describe actions/reactions of aircraft and crewmembers between the time of the emergency and when the aircraft came to final rest at the conclusion of flight.

- c. The postflight phase. Briefly describe condition of aircraft, to include whether or not engine(s) was still operating, and condition of occupants immediately after the accident. Reserve details of injuries, impact conditions, kinematics, and crash forces for the crashworthiness part of the narrative. Reserve details of damage to various aircraft components for the materiel factors part of the narrative. If a postcrash fire occurred, so indicate and explain how and when it was extinguished, if applicable. Briefly summarize egress of occupants from aircraft, survival, and rescue; reserve details for the part of the narrative devoted to egress, survival, and rescue.
2. Human factors. For accidents resulting from causes other than human factors, the human factors part of the narrative may be sharply reduced to negative comments for the subheadings except for sub-headings addressing personnel background information, personnel management, and meteorological conditions.
 - a. Personnel background information. This part of the narrative is extremely important in terms of providing a complete and informative profile of the principal persons involved. It should be a joint effort of reporting on the part of the IP/SP and flight surgeon members of the board. The sources of information will include, but are not limited to, personnel, flight, and training records, friends, peers, subordinates, superiors, and the persons themselves. Background information should primarily address the experience and qualifications of the individual upon arrival at the unit to which assigned at the time of the accident. For each rated crewmember who had a contributing role in the accident, briefly summarize service background to include date of service entry, initial flight training, type of assignments, and aviation qualifications acquired prior to joining current unit. Report aviator crewmembers' background to include evidence of flight safety violations, flight evaluation boards, and history of prior aviation accident involvement.

If the latter applies, explain role in prior accident. Describe experience in mission aircraft relative to how initially

qualified, total flight time to date, and amount of flight time in past 3 months. The same scope of information is usually not necessary for non-rated crewmembers and/or passengers. If it is suspected or known that a non-rated crewmember or passenger was at the controls, or was functioning as an aerial observer, or in another possible cause-related role, summarize background and qualifications. This part of the narrative should also address the background and qualifications of personnel not aboard the aircraft if they played a part in causing the accident. It can involve commanders, operations personnel, ATC and weather personnel, maintenance personnel, and others if applicable.

b. Personnel management.

- 1) Personnel management should primarily address how the individual was managed by the unit to which assigned at the time of the accident. Review how the unit has managed each individual involved. Begin with the date of assignment to current unit and report how the individual was tasked, trained, and otherwise managed up to the date of accident. Describe aviation qualifications and readiness to perform the mission. Indicate whether or not each aviator was qualified and current in the mission, type, design, and series (MTDS) aircraft assigned to the mission. Explain irregularities in the individual's training folder.
- 2) Discuss additional duties and the percentage of time given them versus their primary duty. Report qualifications acquired since assignment to unit such as checkouts in additional aircraft, appointments as IP, SP, IE, PC, UT, etc. Review the procedures involved in selecting the crew for the mission. Describe timeliness of notification, compatibility of crew with mission, and the relative flight experience of the pilots if more than one was assigned to the mission. Describe aviator crewmembers in terms of their professional reputations in unit, opinions of peers, subordinates, and others who have flown with them, and so forth. Describe crewmembers' sleep and dietary habits and use of alcohol and nicotine. Review unit crew rest policy. Report whether or not a crew rest policy was in effect, being monitored and complied with. If postaccident flight evaluations were administered, summarize results. Highlight weaknesses in proficiency if appropriate, especially the performance of tasks duplicating those involved in the accident.

- 3) Report whether or not aviator crewmembers were physically qualified to perform mission. Discuss currency of flight physical. Explain waivers and other irregularities in medical history that may be relevant. Review results of the post accident blood and urine specimen analyses and describe irregularities. If none, so state. If an aviator crewmember was receiving medication before the accident, report type, source, dosage, side effects, and possible effect on performance. Summarize the findings of the post accident medical examination. If an aviator crewmember sustained injuries, give a brief description of the injuries and how they occurred. If an aviator crew-member sustained fatal injuries, briefly summarize autopsy report to include cause of death.
- c. Aircraft suitability. Describe suitability of the accident aircraft to perform the mission. Consider flight and navigation instrumentation in light of prevailing weather conditions, fuel consumption in relation to range, power available in relation to planned gross weight and density altitude, aircraft design limitations as found in applicable operators manual, configurations, etc.
- d. Communications/air traffic services. Describe evidence relating to communications equipment (adequacy of visual and electronic signals, etc.) and the communication that occurred or failed to occur among the crew, between crew and passengers, and between crew and outside services; e.g., ATC, operations, FSS, command and control, pathfinders, etc. Consider language difficulties, clarity of spoken words, adequacy and precision of instruction, etc. Summarize tape recordings of communications between crewmembers and ground stations, if applicable.
- e. Navigation aids. Describe adequacy of navigation aids (VOR, NDB, ILS, etc.) Consider FAA or other agency publications, NOTAMs, pilot reports, etc.
- f. Meteorological information. Describe weather conditions that prevailed throughout the mission and conditions that existed at the accident site at the time of the accident. Include sky condition, visibility, winds, icing, turbulence, and any significant weather conditions. Consider weather observations made by trained weather observers and/or witnesses in the area. If weather was considered a contributory factor to the accident, describe the accuracy of the weather forecast received by the aircrew. If the actual weather differed

- significantly from the forecast, include a discussion of the information that was available to the forecaster.
- g. Ground support services. Describe evidence that relates to the role of ground support services in the accident. Consider POL personnel, ground guides, fire guards, etc.
 - h. Crash survival. Report results of crash survival investigation. Discuss crashworthiness of the aircraft in terms of crash sequence, impact conditions, kinematics, and crash impact forces. Include the performance of the restraint systems and the adequacy of the aircraft structure to maintain occupiable space and attenuate crash forces. Explain occupant injury relationship to crashworthiness. Explain if injuries occurred during or after the crash sequence. Also include the performance of personal protective clothing and equipment; e.g., helmet, visor, clothing, survival vest components, etc.
 - i. Emergency egress (including ejection or bailout), survival, and rescue. Discuss details of egress, survival, and rescue investigations. Describe where individuals were located in aircraft, how and where they exited aircraft, difficulties encountered, and position of aircraft at time of egress. Describe factors that may have enhanced or inhibited the success of the survival/rescue situation. Report when and how rescue personnel were notified and how long it took rescue personnel to respond to the initial notification, arrive at accident site, and evacuate the survivors. Explain problems associated with delays in rescue.
 - j. Special investigation. Report results of any special investigations that were conducted because of the accident. If, for example, during the investigation, it is found that helmet mounted display or night vision systems were a factor in the accident, the applicable agency/program manager should be notified and a determination made as to their involvement.
 - k. Witness investigation. Briefly indicate number of witnesses interviewed and identify duty position. Summarize pertinent witness observations and indicate whether or not witnesses generally agreed concerning accident events. Describe major conflicts in the provided information. Resolution of inconsistencies in the information should be discussed in the analysis portion of the report. Opinions regarding witness credibility should also be reserved for the analysis section.
3. Materiel factors. Report results of materiel factors investigation in the appropriate subparagraphs. Those accidents that do not involve materiel failure/malfunctions may be abbreviated to include

negative reports, if applicable, for all subheadings except aircraft airworthiness and laboratory analysis. Identify and discuss damage resulting from pre-crash materiel failure/malfunctions and omit damage that resulted from crash forces exceeding design limits. References can be made to the wreckage distribution diagram, photographs, reports, records, etc. Include the following areas:

- a. Aircraft airworthiness. Describe the airworthiness of the aircraft. Investigation should include, but not be limited to, maintenance records, historical records, interviews with maintenance personnel, weight and balance records, conduct of preflight, etc. Identify all deficiencies/discrepancies that had a role in the accident. Discuss those technical publications not complied with or inadequate in any manner.
- b. Flight recorders. Report information obtained from flight data recorders, if applicable. The board's analysis of this data, however, should be included in the analysis portion of the report.
- c. Airframe. Use subparagraphs to report evidence obtained in the examination of the airframe structure and landing gear components.
- d. Systems. Use subparagraphs to report evidence obtained in the examination of fuel, warning, flight control, hydraulic, electrical, stability augmentation/autopilot, and other aircraft systems. Note all discrepancies and their effects on the operation of the aircraft.
- e. Powerplant. Report the evidence obtained during examination of the engine(s). Include indications of power at impact. List all discrepancies noted and their effect on engine operation.
- f. Rotor systems or propellers. Report the evidence obtained during the examination of rotor systems or propellers. Describe any faults noted and their condition as a result of strikes/impact.
- g. Transmissions/gearboxes and drive train. Report condition and describe any faults noted and cause, if known.
- h. (8) Laboratory analysis. Report the results of aircraft fluids, components, and parts submitted for laboratory analysis.
- i. (9) Crash site information. Describe adequacy of the crash site/airfield (heliport, helipad, PZ, LZ, etc.) to include dimensions, lighting and marking, obstructions, type and condition of surface, slopes, etc.
- j. (10) Fire. Discuss the role of fire to include when it occurred, manner in which the fire was detected, ignition source,

combustible material, location, propagation, and degree of success in extinguishing.

4. Analysis.

- a. The analysis paragraph should summarize the first three paragraphs of the narrative to include the opinions and conclusions of the board and must conclusively show the cause and effect relationship of the evidence gathered during the accident investigation. The analysis should also discuss those potential factors considered but not supported or determined not to be factors by investigation board. The analysis discusses the influence of command activity or lack thereof in the occurrence or potential prevention of accidents. Subparagraph headings in the analysis may coincide with pertinent subparagraphs in the first three sections of the narrative, with the exception of command influence, which is reserved for the analysis paragraph only. As a minimum, the analysis part of the narrative will provide the following information:
 - 1) Identify the Human errors, materiel failures, or environmental factors involved in the accident in the context of the accident sequence of events. The explanations, examples, and key words are contained in appendix B.
 - 2) Discuss the results/effects of the errors/materiel failures/environmental factors.
 - 3) Identify the system inadequacy(ies) that caused or permitted the errors/materiel failures/environmental factors or injuries to occur. The definitions, examples, and key words are contained in appendix B.
 - 4) Report preventable injuries in the context of crash survivability/ egress/rescue, and explain how they occurred.
 - 5) Discuss the command influence in the accident sequence of events, or the prevention of potential accidents.
- b. To fulfill these information requirements, the board should review all the evidence relating to the accident disclosed during the human, environment and materiel factors investigations. This may require readdressing specific paragraphs contained in the narrative and indicating the relationships between the facts disclosed and the errors/failures/environmental factors that occurred. From this review, the board should consider a logical development of the various circumstances and events that may have existed. This

process of deductive reasoning should lead to the formulation of an explanation (or explanations) concerning what caused the accident and preventable injuries, if they occurred, and why they happened. The explanation(s) should be discussed and tested against the evidence gathered during the investigation. If it is necessary to develop hypotheses, it is important for the board to state why a particular hypothesis was or was not supported by the evidence.

- c. To initially outline and structure the correlation of cause-related errors/materiel failures/environmental factors and associated system inadequacy(ies), the board will find it useful to review the definitions and examples of mistakes/errors, system inadequacy(ies), and remedial measures at appendix B, before composing the narrative part of the analysis. When the outline has been completed, the narrative rationale and conclusions should be composed using the following examples as a guide:
 - 1) Begin the paragraph by specifying the scope and conclusions of the investigation. In all cases, begin the paragraph with these words: "After analyzing the human, materiel, and environmental data collected during the investigation, the board concluded the accident was caused by . . ." Complete the sentence by specifying the factor(s) (human, materiel, or environment) which caused the accident, e.g., ". . . human error-leader failure."
 - 2) Describe when or where the error/failure/injury/environmental factor occurred in the context of the accident chronology of events; e.g., "before the mission," "during takeoff," "during an NOE deceleration," "while installing a hydraulic line," "during the in-flight ejection," "during the crash sequence," etc.
 - 3) Identify the duty position of the person who erred, became injured, or the name and part number or the national stock number (NSN) of the part, component or system that failed; e.g., "the pilot"; "the mechanic"; "the fuel control, NSN 2915-00-157-2313"; "the input bevel gear, part number 2040405009;" etc.
 - 4) Identify the error in the context of a listed mistake/error category; e.g., "incorrectly diagnosed the emergency at hand," "failed to assign responsibilities," "failed to detect," etc. If a materiel failure is being reported, explain the type of failure; e.g., "overheated," "vibrated," "frayed," "decayed," etc. If an injury is being reported, explain if the

- individual “struck” or “was struck by” the injury-causing agent. See appendix B for explanations.
- 5) Cite the directive or standard the mistake/error category failed to comply with; e.g., “contrary to standard and description for task 5007, TC 1–135;” etc. In the absence of written guidance/standards for a mistake/error, evaluate the task in terms of how other equally qualified and prudent personnel would perform the same task under similar circumstances. If the error represents performance that is unacceptable, it is contrary to common practice.
 - 6) Describe the specifics of the error; e.g., “he failed to initially increase collective to maintain the altitude of the tail rotor;” “he excessively torqued the nut, PN 12345;” etc.
 - 7) Describe the consequences of the error, materiel failure, environmental factor, or the resulting injury; e.g., “as a result, when he applied aft cyclic to slow to a full stop, the tail rotor struck the ground, damaging the tail rotor blades and causing a loss of antitorque control;” “as a result, the aircraft landed hard;” “as a result, the pilot sustained a compression fracture of the T12–L1 vertebrae;” etc.
 - 8) A complete error statement could read as follows: “During an NOE deceleration, the pilot improperly responded to the emergency as described for standard 2, task No. 5007, TC 1–135. That is, he failed to initially increase collective to maintain sufficient altitude for tail rotor clearance of the terrain. As a result, when he applied aft cyclic to slow to a full stop, the tail rotor struck the ground damaging the tail rotor blades and causing a loss of effective antitorque control.”
 - 9) A complete materiel failure statement could read as follows: “During cruise flight, a section of the input bevel gear, PN 2040405009, eroded through. As a result, the continuity of the tail rotor drive system was interrupted, causing a loss of effective antitorque control.”
- d. Each statement of error, materiel failure, environmental factor or injury will be followed by statements identifying the system inadequacy(ies) that caused or permitted the error/failure/injury to occur or an environmental factor to become a cause. The system inadequacy(ies) statements are the most important part of the analysis. This is because the system inadequacy(ies) causing or permitting an error, failure, or injury to occur or an environmental factor to become a cause are more important from a remedial standpoint than the error, failure, injury, or

environmental factor itself. Each system inadequacy(ies) statement will contain the following information:

- 1) A transition phrase to tie the system inadequacy(ies) to the error/ failure/injury; i.e., “the pilot improperly responded to the emergency because,” “the bevel gear eroded to a point of failure because,” “the pilot sustained the back injury because,” etc. (b) Identification of the system inadequacy(ies) category(ies); e.g., “because of inadequate motivation/mood (attitude),” “inadequate supervision by the unit operations officer,” “because of inadequate quality control on the part of the manufacturer,” “because of inadequate seat design,” etc.
 - 2) An explanation of how or why each system inadequacy(ies) caused or permitted the error/failure/injury/environmental factor: e.g., “During the pilot’s last standardization flight evaluation, the IP told the pilot he did not perform the NOE deceleration properly and needed additional dual instruction. Regardless, the pilot chose to practice the maneuver by himself before he was given additional training. The IP contributed to the error because he graded substandard performance of the maneuver satisfactory during the standardization flight evaluation and he did not follow up the additional training. The unit operations officer contributed to the error because, after the IP recommended the additional training, he scheduled the pilot for a tactical training mission before ensuring the pilot had received the additional training;” “the manufacturer’s quality control procedures failed to detect a machining defect on the surface of the gear that became the source of progressive fatigue mechanisms;” etc.
- e. Once the preceding elements of information are reported for each error, failure, injury, or environmental factor in the manner stated, the resulting conclusions (findings) can stand on their own. The example of human error used in these instructions ties three system inadequacy(ies) to the error. There would be more or less system inadequacy(ies) depending upon the circumstances. The point to be made is that system inadequacy(ies) causing or permitting an error, failure, or environmental cause must be made visible before effective corrective actions can be recommended.
- f. The analysis part of the narrative does not have to be limited to explaining and concluding what caused or contributed to the accident or injuries. The analysis may also address present but noncontributing hazards if they could adversely affect the

safety of aviation operations. There are provisions for reporting non-cause-related hazards. They are contained in the instructions for completing the DA Forms 2397-2-R.

Block 2. Enter the case number shown on the DA Form 2397-1-R.

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT**PART IV - NARRATIVE**

For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA

*REQUIREMENTS CONTROL**SYMBOL**CSOCS-309*1. NARRATIVE ACCOUNT OF INVESTIGATION *(Use format shown in DA Pamphlet 385-40)*2. CASE
NO.

a. Date (YYMMDD)

b. Time

c. Acft Serial No.

DA Form 2397-4-R; Summary of Witness Interview

Completion instructions for DA Form 2397-4-R, Summary of Witness Interview

Block 1. Self-explanatory.

Block 2. Enter general occupation of the witness and duty being performed at time of the accident, if applicable. Use duties listed at Table 3-5.

Block 3. Enter the grade of witness. Use one of the codes listed below.

| Code | Description |
|----------------------|------------------------------|
| 01-O10 | Commissioned officer |
| W1-W5 | Warrant officer |
| E1-E9 | Enlisted service member |
| GS1-GS18 & GM13-GM18 | DOD civilian employee |
| WG1-WG18 & WS13-WS18 | Wage board employee |
| X1 | Foreign officer, all grades |
| X2 | Foreign enlisted, all grades |
| CAC | Civilian contractor employee |
| CIV | Non-DOD civilian |
| SAC | Service academy cadet |
| ROTC | ROTC student |
| OTH | Personnel other than above |

Blocks 4, 5, and 6. Self-explanatory.

Block 7. List defense satellite network (DSN) number if applicable.

Block 8. Enter date(s) statement(s) was/were made.

Block 9. Summarize aviation experience and background; e.g., "Army aviator 10 years. Total flight hours 3,500 (RW 3,000; FW 500)." Indicate FAA ratings and approximate flight hours for nonmilitary pilot witnesses. Indicate MOS and approximate total flight hours for non-aviator crewmembers drawing flight incentive pay.

Block 10. Enter location of witness at the time of the accident relative to flight path/impact of aircraft.

Block 11. Enter rank/grade and last name of person in charge of interview. If witness is interviewed by different persons in charge on separate occasions, list all interviewers in charge and prefix each name with "1st," "2d," "3d," etc., to designate which interview session the interviewer conducted.

Block 12. Check the appropriate box to indicate if the individual "Was/Was Not" offered a promise of confidentiality. Also, check the appropriate box to indicate whether or not the witness requested a promise of confidentiality. If "Yes" was checked, the interviewer will sign and date the confidentiality statement.

Block 13. Complete the summary of interview block as follows:

1. Multiple interviews, same witness. Prefix the summary of each interview with the date and indicate if the statement is the 1st, 2d, 3d, etc.
2. Comprehensiveness. As a general rule, the interview summaries of persons occupying crew stations aboard the aircraft during the accident should be summarized in greater detail than the statements of others. This is because the crewmembers are the best source of information pertaining to the accident chronology of events. The chronology for the “history of flight,” DA Form 2397–3–R, will most often be obtained from the crew and should be used as a guide in determining what elements of information to include in the interview summaries. If crew error appears to be involved in the accident, the mistake/errors and system inadequacy(ies) listed in the instructions for completing the DA Form 2397–2–R are useful for determining what should be addressed in the crewmember witness summaries.
3. Consolidating. When several witnesses, other than crewmembers, provide essentially the same observations, it is not necessary to prepare a separate DA Form 2397–4–R for each witness except for statements made with a promise of confidentiality. In cases where the summarized statements of several witnesses can be consolidated, it is appropriate to leave blocks 1 through 9 blank. In block 13, list the names of the witnesses and then summarize their collective observations.
4. Format. The proper format is a concise summary of information elements. An example is as follows: “This witness was occupying a passenger seat (identify location in passenger compartment) in the aircraft at the time of the accident. His account of the accident essentially agreed with the “history of flight” portion of DA Form 2397–3–R. Additionally, he heard a grinding noise in the area of the aircraft’s transmission and felt a high frequency vibration where his boots contacted the floor of the airframe in the passenger’s compartment.” In cases where such is essential, limited direct quotes of a witness (together with the specific questions they are in response to) may be used. This, again, should be done sparingly and only when necessary. It is important that the statement be the investigator’s summarization and not an exact verbatim transcript of what the witness said. The summary should be written in the third person (“the witness said,” “he said,”) and not the first person (“I saw,” “I heard”).

Block 14. Enter the case number shown on DA Form 2397–1–R.

Block 15. Interviewer will read block 15a or 15b to each witness, depending upon the category and/or circumstances of the witness.

Block 16. Those witnesses which were offered a promise of confidentiality, must indicate acceptance or refusal by initialing the appropriate statement.

| TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT PART V - SUMMARY OF WITNESS INTERVIEW For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA | | | REQUIREMENT CONTROL SYMBOL CSOCS-309 | |
|---|------------------------------|-----------------|---|--------|
| 1. NAME OF WITNESS <i>(Last, First, Mi)</i> | 2. OCCUPATION/TITLE | 3. GRADE | 4. SSN | 5. AGE |
| 6. ADDRESS <i>(Include ZIP Code) (If military, include organization)</i> | | | 7. TELEPHONE NUMBER | |
| | | | 8. DATE OF INTERVIEW | |
| 9. EXPERIENCE AND BACKGROUND | 10. LOCATION AT TIME OF ACDT | 11. INTERVIEWER | | |
| 12. Was a promise of confidentiality offered to the witness? <input type="checkbox"/> YES <input type="checkbox"/> NO <i>(If yes, read blk 15a to the witness and complete blk 16. If no, read blk 15b to the witness.)</i> Confidentiality was requested by the witness. <input type="checkbox"/> YES <input type="checkbox"/> NO <i>(If Yes, interviewer sign and date statement below.)</i> | | | | |
| <p style="text-align: center;">THE WITNESS MADE THIS STATEMENT UNDER A PROMISE OF CONFIDENTIALITY.</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%; text-align: center;"> <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> SIGNATURE OF INTERVIEWER </div> <div style="width: 45%; text-align: center;"> <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> DATE </div> </div> | | | | |
| 13. SUMMARY OF INTERVIEW | | | | |
| 14. CASE NO. | a. Date <i>(YYMMDD)</i> | b. Time | c. Acft Serial No. | |

15. GENERAL WITNESS INFORMATION BRIEFING (Interviewer must read appropriate instructions to the witness)

a. Promise of confidentiality offered.

(1) This accident investigation board has been convened under the provisions of AR 385-40 for the purpose of conducting a safety investigation.

(2) This may be just one of a number of investigations being conducted regarding this accident; collateral or legal investigations may be ongoing as well. Those investigations are entirely separate from a safety investigation and are also required to inform you of their purpose and of your legal rights.

(3) This safety investigation is being conducted for accident prevention purposes only. Within the military, pursuant to Army Regulation 385-40, it cannot be used for any other purpose, to include any future disciplinary actions against any individuals. Therefore, the interview you are being asked to provide will be used by the Army in the interest of safety and accident prevention only.

(4) Nonconfidential witness interviews may be released to the public pursuant to a Freedom of Information Act request. If you wish to protect your interview from public release outside the military, then your interview must be pursuant to a promise of confidentiality. Confidentiality means that your interview will not be released to the public or outside DOD safety channels.

(5) Whether your interview is confidential or not, the chain of command will review the final accident report, which may include a summary of your interview, but the chain of command may only use the investigation report and the interviews for safety and accident prevention purposes.

(6) If you ever have knowledge that your witness interview was used by the Army for anything other than accident prevention purposes (for example, disciplinary action against an individual), you should consult with your local Judge Advocate Defense Counsel Office and request that the Command Judge Advocate, U.S. Army Safety Center, be notified at DSN 558-3960 or commercial (205) 255-3960.

(7) The promise of confidentiality is available to you if you desire it. Do you desire it?

b. No promise of confidentiality offered.

(1) This accident investigation board has been convened under the provisions of AR 385-40 for the purpose of conducting a safety investigation.

(2) This may be just one of a number of investigations being conducted regarding this accident; collateral or legal investigations may be ongoing as well. Those investigations are entirely separate from a safety investigation and are also required to inform you of their purpose and of your legal rights.

(3) This safety investigation is being conducted for accident prevention purposes only. Within the military, pursuant to Army Regulation 385-40, it cannot be used for any other purpose, to include any future disciplinary actions against any individuals. Therefore, the interview you are being asked to provide will be used by the Army in the interest of safety and accident prevention only.

(4) The chain of command will review the final accident report, which may include a summary of your interview, but the chain of command may only use the investigation report and the interviews for safety and accident prevention purposes. The interview summary may be released to the public pursuant to a Freedom of Information Act request.

(5) If you ever have knowledge that your witness interview was used by the Army for anything other than accident prevention purposes (for example, disciplinary action against an individual), you should consult with your local Judge Advocate Defense Counsel Office and request that the Command Judge Advocate, U.S. Army Safety Center, be notified at DSN 558-3960 or commercial (205) 255-3960.

16. AVAILABILITY OF PROMISE OF CONFIDENTIALITY FOR "LIMITED USE" REPORT OF INVESTIGATION

a. Pursuant to AR 385-40, witness interviews may only be used within the military for purposes of accident prevention, and may not be used as evidence in connection with any administrative or disciplinary proceeding. This protection alone does not prevent release of the interview outside of the military (to the public, newspapers, attorneys, etc.) under the Freedom of Information Act. If you wish to protect your interview from release outside of the military, then your interview must be pursuant to a promise of confidentiality.

b. If you do not wish a promise of confidentiality, you may decline such below. In that case, your interview will still be used in the military only for purposes of accident prevention, but it may be released outside of the military in response to a Freedom of Information Act request. Please indicate which option you desire by initialing one of the choices below:

_____ I request a promise of confidentiality. I understand that the results of the interview will be used within the military only for the purposes of accident prevention, and will also be protected from public release outside of the military under the Freedom of Information Act.

_____ I decline a promise of confidentiality. I understand that the results of my interview will be used within the military only for purposes of accident prevention. I also understand that the results may be publicly released outside of the military under the Freedom of Information Act.

Name of witness (Print)

DA Form 2397-5-R; Wreckage Distribution

Completion instructions for DA Form 2397–5–R, Wreckage Distribution

General. Orient the flight path (at instant of initial impact) along the horizontal or vertical axis of the grid and show the direction of true north, oriented to the top of the page, with an arrow. This procedure eases the task of locating the aircraft component(s) laterally and longitudinally along the crash path. A suggested scale of 40 feet per inch is shown. Actual scale used is to be entered. Show wind direction with an arrow pointed in the direction of the windflow. Identify wind direction in degrees and velocity in knots.

Block 1. Use grid to show the following information:

1. Location of all aircraft major and significant components.
2. Obstacles struck by aircraft in crash sequence; i.e., structure, trees, power lines, etc.
3. Terrain marks made by aircraft in crash sequence; i.e., earth gouge length, width, and depth, snow or earth pushed in front of aircraft, etc.
4. A profile view of the wreckage distribution, especially if the impact occurs on sloped terrain or on obstacles in the flight path.
5. If necessary, use more than one form to show the profile view of the crash sequence, especially if the initial impact occurs on a tall tree or power line where a large vertical axis is needed.
6. For midair collisions, construct a composite diagram (wreckage distribution of both aircraft superimposed on the same plot).
7. For a widely scattered wreckage distribution, use a larger grid sheet if needed, and attach to this form.
8. If the aircraft rolls over or noses over one or more times along the crash path, so indicate by use of curved arrows.
9. Identify initial, major, and secondary impact points, as applicable.
10. Show location of key witnesses.
11. Show location of personnel thrown or ejected from the aircraft.

Note: A polar diagram is another acceptable method of diagramming rotary–wing or fixed–wing accident sites. The top of the diagram can represent north. A readily identifiable portion of the wreckage e.g., fuselage, nose, wing, etc. can serve as a point of origin or pole for the diagram. Choose a scale that will allow plotting of the whole accident scene. Determine the compass

heading of the aircraft at its final resting place and position a semblance of the aircraft on the diagram so debris can be plotted from that point. Determine the compass heading and distance of pieces of wreckage from the main body of the wreckage. Number the location of each piece of wreckage at the position it was found relative to the main wreckage. Define the numbers with a legend that identifies each piece of wreckage and shows its direction and distance from the main wreckage.

Block 2. Enter the case number as shown on the DA Form 2397-1-R, block 25.

Block 3. Use only for aircraft other than “case aircraft” in accidents involving more than one aircraft. Enter serial number of other aircraft to which the form applies.

TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT**PART VI - WRECKAGE DISTRIBUTION**

For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA

*REQUIREMENTS CONTROL**SYMBOL**CSOCS-309***1. GRID: SHOW MAJOR GOUGE MARKS, DISTRIBUTION OF WRECKAGE, OBSTACLES, DIRECTION OF NORTH, WIND DIRECTION, WIND VELOCITY, POSITION OF WITNESS, ETC.**

Suggested Scale: 1" Equals 50'

Actual Scale: 1" Equals _____

| | | | | |
|--------------------|------------------|---------|--------------------|-------------------------------------|
| 2. CASE NO. | a. DATE (YYMMDD) | b. Time | c. Acft Serial No. | 3. OTHER AIRCRAFT SERIAL NO. |
|--------------------|------------------|---------|--------------------|-------------------------------------|

DA Form 2397-6-R; Crash Damage Data Details

Completion instruction for DA Form 2397-6-R, Crash Damage Data Details

Block 1. This block is required for in-flight collisions, such as a midair collision, wire strike, bird strike, tree strike, etc. If doubt exists as to whether this block or block 2 should be used, both blocks can be completed. For example, the aircraft may strike a structure during an approach and continue under control some distance forward and crash; thus, in-flight and terrain collisions are involved. Near simultaneous impacts with trees, structures, etc., and the ground require block 2 to be completed. In other cases, such as a bird strike, in which a subsequent routine landing is made, only block 1 would be checked. If the information desired in these blocks cannot be determined, so state in the box(es) provided for the information.

Block 1a. Estimate or analytically determine and enter the airspeed (knots) just before impact.

Block 1b. Estimate or analytically determine and enter the vertical speed (feet per minute) just before impact, and check whether “up” or “down.” If zero, enter “0” in space provided and do not check “up” or “down” box.

Block 1c. Enter the flight path angle (degrees) at major impact and check whether “up” or down.”

Block 1d. Enter the pitch and roll angles (degrees) at moment of impact and check the appropriate direction.

Block 1e. Check obstacle(s) struck while aircraft was in flight. For example, contact with a hangar building would be checked as “Other.” Also enter collision height above the ground.

Block 1f. Check box to identify area of aircraft that sustained the strike. If aircraft sustained a strike at more than one location, check several boxes and indicate 1st, 2nd, 3rd, to show strike sequence.

Block 1g. Check the appropriate box to reflect the wire/cable(s)/obstacle consciousness to the pilot under the environmental conditions and terrain at the time of the incident.

Block 1h. Enter the outside diameter for the type cable/bundle struck. The outside diameter of the wire bundle/cable including insulation is desired, not the individual wire inside the bundle or cable. Enter the number of wires struck in the impact; i.e., in a five-cable power transmission line, only three cables may be struck.

Block 1i. Check whether or not a wire strike protection system (WSPS) was installed. Also check whether or not the WSPS cut the wire.

Block 1j Enter outside diameter of tree limb, pole, bush, etc., that was struck, if applicable.

Block 2. Complete this block to show terrain collision kinematics at instant of major impact. If block 1 was filled out and aircraft continues under control after in-flight collision and then sustains further damage upon ground impact, complete block 2 also. If aircraft sustains in-flight damage such as from a bird strike and then makes a routine landing, block 2 does not have to be filled out.

Block 2a. Estimate or analytically determine and enter the ground/horizontal velocity (knots) at the instant of the major impact. The horizontal velocity is desired. This value is not to be confused with airspeed or resultant velocity. The ground speed vector combined with the vertical speed vector can be used to determine the resultant velocity as shown for sample high angle and low angle impacts.

Block 2b. Estimate or analytically determine and enter the vertical speed (feet per minute) just before impact and check whether “up” or “down.” The vertical speed at impact can be combined with ground speed to yield the resultant velocity as discussed above.

Block 2c. Enter the flight path angle (degrees) just before impact and check whether “up” or “down.”

Block 2d. Indicate by check marks which two of the three parameters above are the most accurate. Since any two items can determine the third, it is necessary to determine which two (a or b, b and c, or a and c) the investigator feels are most accurate. Check only two boxes.

Block 2e. Enter the impact angle (degrees).

Block 2f. Enter the pitch, roll, and yaw attitude (degrees) of aircraft at the instant of impact.

1. *Pitch.* Enter degrees and check “up” or “down” pitch in appropriate box.
2. *Roll.* Enter degrees and check “Left” or “Right” roll in appropriate box.
3. *Yaw.* Enter degrees and check “Left” or “Right” yaw as appropriate. If nose is to left of flight path, check “Left” box; if nose is to the right, check “Right” box.

Block 3a. Check the appropriate box indicating of the aircraft rotated about a major axis after impact.

Block 3b. Enter the roll in degrees for the appropriate direction if the aircraft rolled significantly after the major impact. A value should be entered even if the aircraft comes to rest in the original attitude after it has rotated during the crash sequence.

Block 3c. Enter the yaw in degrees for the appropriate direction if the aircraft yawed significantly after the major impact. A value should be entered even if the aircraft comes to rest in the original attitude after it has yawed during the crash sequence.

Block 3d. Enter the pitch in degrees from the horizontal (level) attitude if the aircraft pitched (nose up or down) after major impact and check the appropriate box to indicate if the pitch was up or down. For example, if an aircraft rotates forward about the nose as a fulcrum; i.e., a forward pitching motion, check “down.”

Block 4a. Estimate or analytically determine and enter the vertical force (g's) at the aircraft center of gravity (CG). Check whether the force was “up” or “down.”

Block 4b. Estimate or analytically determine and enter the longitudinal force (g's) at the aircraft CG. Check whether the force was “fore” or “aft.”

Block 4c. Estimate or analytically determine and enter the lateral force (g's) at the aircraft CG. Check whether the force was “left” or “right.”

Block 5. Enter the case number as shown on the DA Form 2397.

Block 6. Use only for aircraft other than “case aircraft” in incidents involving more than one aircraft. Enter serial number of other aircraft only on each DA Form 2397-6 that applies to other aircraft.

Block 7. This block shows fuselage structural deformation or collapse and its relation to personnel impact injuries. The areas of fuselage most likely to be deformed are stated in items a through f. The location of the deformation is indicated in the four columns labeled cockpit, forward, middle and rear cabin. If the deformation or collapse caused injuries to personnel, the appropriate box of item 7 should be checked.

Blocks 7a-e. Check column(s) 1 through 4 to show the location of deformation for each fuselage area. As a general rule, deformation of 3 inches or less is not enough to be recorded because injuries are not likely to result from such movement. If personnel injuries were caused by fuselage structural deformation, columns 5 through 8 should be checked in the appropriate box. Injuries caused by nonuse of restraint and seat failure and other injuries not related to fuselage deformation are not to be recorded here.

Block 7f. Check box to indicate whether the floor was deformed locally under the seat structure. This type deformation may occur as a result of external rock or tree stump impact. For example, if one seat leg floor fitting is pushed upward by at least 6 inches with respect to the other three fittings, check the box. The same applies to sideward or fore / aft movement of the seat leg floor fittings.

NOTE: Photographs should be made of the deformed areas checked under items a through f. At least two photos should be obtained, and they should be taken along mutually perpendicular axes to help offset the effect of distortion.

Block 8. This block indicates the displacement of heavy aircraft components so their potential for injury or for ignition of fires may be evaluated. Only those components expected to be a major hazard are listed under items a through e. Block f provides for the displacement of other heavy components such as engines, prop blades, electrical boxes, etc., which could be a hazard to personnel. Columns 1 through 4 describe the displacement of the components from their normal position.

Blocks 8a-d. These components are potentially the most hazardous on rotary-wing aircraft. Displacement of single rotor transmission and/or rotor blades are to be checked in items a and c while tandem rotor aircraft are to be checked in items a, b, c, and d as appropriate. In the main rotor hub(s) remain attached to their blades, the hub is assumed an integral part of the blade(s) and is checked under item c or d. If the hub(s) remain attached to the transmission(s), the hub is assumed an integral part of the transmission and displacement is checked under item a or b.

Block 8e. Check landing gear displacement. Specify which landing gear, wheel, or skid displaces by simply stating the location on the aircraft; i.e., left front, center front, right front, left rear, center rear, right rear. If more than one gear displaces, continue the identities show above in remarks block (block 11) to indicate the displacement.

Block 8f. Check this box(es) to identify displacement of heavy component(s) not shown above. If more than one mass is involved, explain in block 10.

1. *Column 1.* Check box(es) in this column if sufficient displacement has occurred to cause the component to be hazardous even though injuries may not be present. For helicopter transmissions, it is probable that a 10 degree tilt of the transmission and rotor mast will result in a hazardous condition due to fuselage rotor blade strike potential. Likewise, a 6-inch displacement of the transmission, along any axis, will probably result in a hazardous condition. Check the box for rotor blade(s)

(item c or d) if it is determined that further blade rotation would result in an occupiable volume blade strike.

2. *Column 2.* Check box if a major component is separated completely from its normal structural attachment even though the component may still be held by flexible attachments such as control cables or rods and electrical wires.
3. *Column 3.* Check this box if component actually deformed or penetrated the cockpit “container” sufficiently to create a hazard.
4. *Column 4.* Check this box if component actually deformed or penetrated the cabin “container” sufficiently to create a hazard. Photographs should be made of the displaced components checked under items a through f. At least two photos should be obtained, and they should be taken along mutually perpendicular axes to help offset the effect of distortion.

Block 9a. Check whether or not aircraft is equipped with crash resistant fuel system.

Block 9b. If aircraft is equipped with crash-worthy fuel system, check to determine whether the breakaway valves in the fuel system did separate.

Block 9c. Check whether or not flammable fluid spillage occurred. If “yes” box is checked, complete block e.

Block 9d. Check whether or not aircraft was equipped with auxiliary fuel tanks and indicate if the tanks were internal or external. Also, check the appropriate box which best describes the crashworthiness of the tanks. If the tanks are partially crash-worthy, check “No” and explain in the remarks.



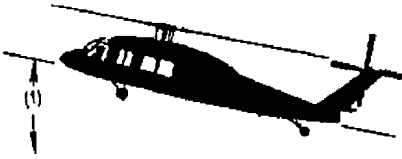
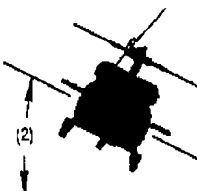
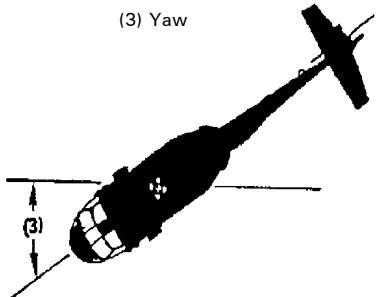
Block 9e. In the space corresponding with the amount of flammable fluid spilled, enter the type of fluid which was spilled e.g., Jet-A, JP-8, etc. Example: 15 gallons of JP-8 fuel was spilled, enter JP-8, under the fuel column, adjacent to the >10-20 amount line. The amount of spilled fluid can be estimated by:

1. The difference between quantity of fluid remaining and fluid before incident, and;
2. A knowledge of the probable mode of failure in the fluid system; i.e., did fluid trickle out at slow rate or did it gush out all at once?

Block 10. Identify one or more spillage sources by writing the name of the part causing or permitting leakage. Rows 7,8, and 9 may be used to list other sources such as coolers, accumulators, etc. Also, write in the manufacturer’s part number and the NSN. The exact identity of the part causing leakage is desired, not the component or

assembly. State cause of fluid spillage in REMARKS. For example, a shift of cargo may have crushed the internal auxiliary fuel tanks.

Block 11. Explain in remarks any additional data the investigation board deems appropriate.

| TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT PART VII - IN-FLIGHT OR TERRAIN IMPACT AND CRASH DAMAGE DATA <small>For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA</small> | | | | REQUIREMENTS CONTROL SYMBOL CSOCS-309 | | | | | | | | | | | | | | | | |
|---|--------------------------------------|---|---|---|------------------------------------|------|---------------------------------------|------------|---|--|---------------------------------------|---------------------|-----------------------------------|--|------------------------------------|--|--|---------------------|--|--|
| 1. IN-FLIGHT COLLISION KINEMATICS AT INSTANT OF IMPACT | | | | | | | | | | | | | | | | | | | | |
| a. Airspeed At Impact (knots) <hr/> b. Vertical Speed (feet per minute) <input type="checkbox"/> Up <input type="checkbox"/> Down <hr/> c. Flight Path Angle (degrees) <input type="checkbox"/> Up <input type="checkbox"/> Down <hr/> d. In-Flight Attitude At Impact <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> (1) Pitch Angle  Degrees <hr/> <input type="checkbox"/> Up <input type="checkbox"/> Down </div> <div style="text-align: center;"> (2) Roll Angle  Degrees <hr/> <input type="checkbox"/> Left <input type="checkbox"/> Right </div> </div> | | | f. Obstacle Strike Sequence (Enter 1, 2, 3, etc. to show sequence of strike) <div style="display: flex; justify-content: space-between;"> <div> _____ Prop/Rotor _____ Rotor Mast _____ Tail Rotor _____ Tail Boom _____ Windscreen _____ LWR Nose/Gun Turret </div> <div> _____ Landing Gear _____ Wing _____ Empennage _____ WSPS _____ FLIR _____ Other (Specify) _____ </div> </div> g. Obstacle Conspicuity (Within accident distance from pilot's position, the obstacle in its surroundings was obscured) (1) <input type="checkbox"/> Completely (2) <input type="checkbox"/> Partially (3) <input type="checkbox"/> Not Obscured h. Wire or Cable Description <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Type</th> <th style="width: 20%;">Dia In Inches</th> <th style="width: 40%;">No. Struck</th> </tr> </thead> <tbody> <tr><td>(1) Power Transmission</td><td></td><td></td></tr> <tr><td>(2) Telephone or TV</td><td></td><td></td></tr> <tr><td>(3) Bracing (guy/support)</td><td></td><td></td></tr> <tr><td>(4) Other (Specify)</td><td></td><td></td></tr> </tbody> </table> i. WSPS (1) Installed <input type="checkbox"/> Yes <input type="checkbox"/> No (2) Cut Wire <input type="checkbox"/> Yes <input type="checkbox"/> No j. Obstacle Struck Other Than Wire (diameter in inches) <hr/> | | | Type | Dia In Inches | No. Struck | (1) Power Transmission | | | (2) Telephone or TV | | | (3) Bracing (guy/support) | | | (4) Other (Specify) | | |
| Type | Dia In Inches | No. Struck | | | | | | | | | | | | | | | | | | |
| (1) Power Transmission | | | | | | | | | | | | | | | | | | | | |
| (2) Telephone or TV | | | | | | | | | | | | | | | | | | | | |
| (3) Bracing (guy/support) | | | | | | | | | | | | | | | | | | | | |
| (4) Other (Specify) | | | | | | | | | | | | | | | | | | | | |
| e. Obstacle Identity And Collision Height <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Obstacle</th> <th style="width: 70%;">Collision Height Above Ground (feet)</th> </tr> </thead> <tbody> <tr><td>(1) <input type="checkbox"/> Birds</td><td></td></tr> <tr><td>(2) <input type="checkbox"/> Aircraft</td><td></td></tr> <tr><td>(3) <input type="checkbox"/> Wires/Cables</td><td></td></tr> <tr><td>(4) <input type="checkbox"/> Vehicles</td><td></td></tr> <tr><td>(5) <input type="checkbox"/> Tree</td><td></td></tr> <tr><td>(6) <input type="checkbox"/> Other</td><td></td></tr> </tbody> </table> | | | Obstacle | Collision Height Above Ground (feet) | (1) <input type="checkbox"/> Birds | | (2) <input type="checkbox"/> Aircraft | | (3) <input type="checkbox"/> Wires/Cables | | (4) <input type="checkbox"/> Vehicles | | (5) <input type="checkbox"/> Tree | | (6) <input type="checkbox"/> Other | | | | | |
| Obstacle | Collision Height Above Ground (feet) | | | | | | | | | | | | | | | | | | | |
| (1) <input type="checkbox"/> Birds | | | | | | | | | | | | | | | | | | | | |
| (2) <input type="checkbox"/> Aircraft | | | | | | | | | | | | | | | | | | | | |
| (3) <input type="checkbox"/> Wires/Cables | | | | | | | | | | | | | | | | | | | | |
| (4) <input type="checkbox"/> Vehicles | | | | | | | | | | | | | | | | | | | | |
| (5) <input type="checkbox"/> Tree | | | | | | | | | | | | | | | | | | | | |
| (6) <input type="checkbox"/> Other | | | | | | | | | | | | | | | | | | | | |
| 2. TERRAIN COLLISION KINEMATICS AT INSTANT OF MAJOR IMPACT | | | | | | | | | | | | | | | | | | | | |
| a. Ground Speed at Impact <hr/> (knots) b. Vertical Speed <input type="checkbox"/> Up <input type="checkbox"/> Down <hr/> (FPM) c. Flight Path Angle <input type="checkbox"/> Up <input type="checkbox"/> Down <hr/> (degrees) | | | d. Indicate by Check Marks Which Two of The Three Preceding Parameters (a, b, c) Are The Most Accurate a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> e. Impact Angle <hr/> (degrees) | | | | | | | | | | | | | | | | | |
| f. Attitude at Major Impact <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> (1) Pitch  Degrees <hr/> <input type="checkbox"/> Up <input type="checkbox"/> Down </div> <div style="text-align: center;"> (2) Roll  Degrees <hr/> <input type="checkbox"/> Left <input type="checkbox"/> Right </div> <div style="text-align: center;"> (3) Yaw  Degrees <hr/> <input type="checkbox"/> Left <input type="checkbox"/> Right </div> </div> | | | | | | | | | | | | | | | | | | | | |
| 3. ROTATION AFTER MAJOR IMPACT | | | | | | | | | | | | | | | | | | | | |
| a. Did Aircraft Rotate About Any Axis After The Above Major Impact (If yes, complete items b, c, and d) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown | | | | | | | | | | | | | | | | | | | | |
| b. Roll Degrees <input type="checkbox"/> Left <input type="checkbox"/> Right Degrees <hr/> | | c. Yaw Degrees <input type="checkbox"/> Left <input type="checkbox"/> Right Degrees <hr/> | | d. Pitch Degrees <input type="checkbox"/> Up <input type="checkbox"/> Down Degrees <hr/> | | | | | | | | | | | | | | | | |
| 4. IMPACT FORCES RELATIVE TO AIRCRAFT AXES (G's) | | | | | | | | | | | | | | | | | | | | |
| a. Vertical (G's) <input type="checkbox"/> Up <input type="checkbox"/> Down G's <hr/> | | b. Longitudinal (G's) <input type="checkbox"/> Fore <input type="checkbox"/> Aft G's <hr/> | | c. Lateral (G's) <input type="checkbox"/> Left <input type="checkbox"/> Right G's <hr/> | | | | | | | | | | | | | | | | |
| 5. CASE NO. | a. Date (YYMMDD) | b. Time | c. Acft Serial No. | 6. OTHER ACFT SERIAL NO. | | | | | | | | | | | | | | | | |

| 7. FUSELAGE INWARD DEFORMATION OR COLLAPSE AND INJURY RELATIONSHIP (Check appropriate boxes) | | | | | | | | | |
|--|---|--|---------------------------|----------------------------------|------------------------|---|---------------------------------|-----------------------|------------------------|
| Fuselage Area | Amount or Type of Deformation or Collapse | Specific Area of Deformation or Collapse | | | | Fuselage Deformation Produced/Contributed to Injury | | | |
| | | Cockpit (1) | Forward Cabin Area (2) | Mid Cabin Area (3) | Rear Cabin Area (4) | Cockpit (5) | Forward Cabin Area (6) | Mid Cabin Area (7) | Rear Cabin Area (8) |
| a. Roof | Up to 1 Foot | | | | | | | | |
| | More Than 1 Foot But Less Than 3 Feet | | | | | | | | |
| | More Than 3 Feet Foot | | | | | | | | |
| b. Left Side | Up to 1 Foot | | | | | | | | |
| | More Than 1 Foot | | | | | | | | |
| c. Right Side | Up to 1 Foot | | | | | | | | |
| | More Than 1 Foot | | | | | | | | |
| d. Nose | Up to 1 Foot | | | | | | | | |
| | More Than 1 Foot | | | | | | | | |
| e. Floor | Up to 1 Foot | | | | | | | | |
| | More Than 1 Foot | | | | | | | | |
| f. Floor (local deformation under seats) | Vertical | | | | | | | | |
| | Sideward | | | | | | | | |
| | Forward/Rearward | | | | | | | | |
| 8. LARGE COMPONENT DISPLACEMENT (Check appropriate boxes) | | | | | | | | | |
| Component | | | | Displaced (1) | Torn Free (2) | Cockpit Penetrated/Entered (3) | Cabin Penetrated/Entered (4) | | |
| a. Transmission (forward or main) | | | | | | | | | |
| b. Transmission (rear) | | | | | | | | | |
| c. Rotor Blade (forward or main) | | | | | | | | | |
| d. Rotor Blade (rear or tail) | | | | | | | | | |
| e. Landing Gear (specify location) | | | | | | | | | |
| f. Other (specify) | | | | | | | | | |
| 9. POSTCRASH FLAMMABLE FLUID SPILLAGE | | | | | | | | | |
| a. Equipped With Crashworthy Fuel System <input type="checkbox"/> Yes <input type="checkbox"/> No | | b. If So Equipped, Did Breakaway Valves Separate as Designed <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA | | e. Amount and Type Fluid Spilled | | | | | |
| c. Flammable Fluid Spillage Occurred <input type="checkbox"/> Yes <input type="checkbox"/> No | | d. Auxiliary Fuel Tanks Installed <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Internal <input type="checkbox"/> External Crashworthy <input type="checkbox"/> Yes <input type="checkbox"/> No | | Gallons | Fuel (Type) | Oil (Type) | Hyd Fluid (Type) | Other (Specify) | |
| | | | | 0 - 1 | | | | | |
| | | | | > 1 - 2 | | | | | |
| | | | | > 2 - 10 | | | | | |
| | | | | > 10 - 20 | | | | | |
| | | | | > 20 | | | | | |
| 10. SPILLAGE SOURCE | | | | | | | | | |
| Part | a. Part Name/Nomenclature | | | b. Part Number | | | c. National Stock No. | | |
| (1) Cell/Tank/Reservoir | | | | | | | | | |
| (2) Filter | | | | | | | | | |
| (3) Fitting | | | | | | | | | |
| (4) Fluid Line | | | | | | | | | |
| (5) Valve | | | | | | | | | |
| (6) Breakaway Valve | | | | | | | | | |
| (7) Other (Specify) | | | | | | | | | |
| (8) Other (Specify) | | | | | | | | | |
| (9) Other (Specify) | | | | | | | | | |
| 11. REMARKS | | | | | | | | | |

DA Form 2397-7-R; Maintenance and Material Data Details

Completion instructions for DA Form 2397-7-R, Maintenance and Material Data

Block 1. Applies to the aircraft and not the component or part that failed. Enter data from aircraft records. If additional DA Form 2397-7-Rs are needed for multiple failed parts from the same aircraft, it is not necessary to duplicate this information.

Block 1a. Enter the total on the airframe until the time of the incident. Obtain data from DA Form 2408-13 (Status Information).

Block 1b. Obtain data from DA Form 2408-15 (Historical Record for Aircraft).

Block 1c. Enter the date of the last phase inspection. Obtain data from DA Form 2408-15.

Block 1d. Enter the hours flown since the last phase inspection.

Block 1e. Enter the organization that performed the last phase inspection.

Block 2. This block shows the causative role of material, maintenance, design and manufacture as they pertain to the major component/part reported in block 3 of this form.

Block 2a. Check the appropriate box to show whether or not material failure/malfunction of the component/part in block 3 had a causative role in the incident.

Block 2b. Check the appropriate box to show whether or not a maintenance act of omission or commission had a causative role in the incident.

Block 2c. Check the appropriate box to show whether or not design had a causative role in the incident. Design is a factor when the component/part failed to perform its specified function because of design inadequacies.

Block 2d. Check the appropriate box to show whether or not manufacture had a causative role in the incident. Manufacture is a factor when the component/part was not manufactured to meet proper design specifications.

Note: If maintenance was checked as a cause factor in block 2, explain in block 6 or continuation sheet the technical manual or other directive requirement for the maintenance and how the error committed or the omission of a requirement(s) related to the major component/part shown in block 3.

Block 3. Fill out major component and part columns in complete detail for each item of material whose failure or malfunction contributed or is suspected of contributing to the cause of the incident. Blocks a-k apply to the component or part, not the aircraft.

Blocks 3a and b. Obtain from appropriate parts manual. When the major component is an engine, transmission, or gearbox and the aircraft is equipped with more than one like item, identify which major component is listed; e.g., No1 engine, forward transmission, 42-degree gearbox, etc.

Block 3c. The part number should be taken from the part or component if possible. The maintenance / technical manual will be used as a source for the part number only if it cannot be determined from the part.

Block 3d and e. Obtain from appropriate maintenance / technical manual.

Block 3f. Enter the serial number from the item of material. If the number differs from that contained in the Form 2408-16, state this fact in block 6 or on a continuation sheet.

Block 3g. Obtain from appropriate maintenance / technical manual.

Block 3h. Extract this information from DA Form 2408-16 and DA Form 2410 (Component Removal and Repair/Overhaul Records). Enter the type, date, and hours since the last special inspection on the listed item of material; e.g., “overspeed,” “hard landing,” etc. For components/parts installed during aircraft production, enter “N/A.”

Blocks 3i and j. Enter the type and cause of failure codes in DA Pam 738-751, Table 1-2.

Block 3k. Obtain from Standard Form 368 (Deficiency Report).

Block 4a. Check the appropriate block to show status of aircraft warning system(s) for the failed part at time of emergency. If inoperative is checked, explain in block 6 or on a continuation sheet.

Block 4b. Check the appropriate box to indicate if the warning systems indication of the failure/malfunction provided to the crew was correct for the failed part. If incorrect, explain in block 6 or on a continuation sheet.

Block 4c. Check the appropriate block indicate the initial indication of the failure; e.g., a hydraulic warning light illuminates followed by stiffness in the controls, check the warning system block to indicate what first alerted the crew to a failure/malfunction.

Block 5a. Specify the organization/laboratory that performed the teardown analysis.

Block 5b. Enter the control number, if applicable.

Block 6. Explain delays in shipment of failed part, fluid samples, or any other material related data deemed appropriate by the board president. If additional space is required, attach continuation sheet.

Block 7. Enter the case number shown on the DA Form 2397.

Block 8. Use only for aircraft other than “case aircraft” in incidents involving more than one aircraft. Make entry only on the form identifying the maintenance and material data for other aircraft.

| TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT PART VIII - MAINTENANCE AND MATERIEL DATA <small>For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA</small> | | | | | REQUIREMENTS CONTROL SYMBOL CSOCS-309 | |
|---|------------------|--|--|--|--|---------------------|
| 1. AIRCRAFT HISTORY | | | 2. CAUSATIVE ROLE | D Definite | S Suspected | U Unknown |
| a. Hours Since New | | | a. Materiel | | | |
| b. Hours Since Last Major Repair | | | b. Maintenance | | | |
| c. Last Phase Inspection (YYMMDD) | | | c. Design | | | |
| d. Hours Flown Since Last Phase Inspection | | | d. Manufacture | | | |
| e. Organization Completing Last Phase Inspection (UIC) | | | | | | |
| 3. FAILED OR MALFUNCTIONED MATERIEL | | | | | | |
| Identification | | Major Component | | Part | | |
| a. Nomenclature | | | | h. TAMMS Data | | |
| b. Type, Design, Series | | | | (1) No. of Overhauls | | |
| c. Part Number | | | | (2) Date of Last Overhaul (YYMMDD) | | |
| d. NSN | | | | (3) Hrs Since Overhaul | | |
| e. MFG Code | | | | (4) Hrs Since New | | |
| f. Serial Number | | | | (5) Hrs Since Last Installed | | |
| g. TM Data | | | | (6) Date Last Installed (YYMMDD) | | |
| (1) TM Number | | | | (7) Last Overhaul Facility | | |
| (2) Date (YYMMDD) | | | | (8) Last Special Insp (Type) | | |
| (3) Functional Group | | | | (9) Hrs Since Last Special Inspection | | |
| (4) Figure Number | | | | (10) Date of Last Spec Inspection (YYMMDD) | | |
| (5) Item Number | | | | i. Type/Mode of Failure/Malfunction | | |
| | | | | j. Cause of Failure/Malfunction | | |
| | | | | k. QDR/EIR Number | | |
| 4. WARNING SYSTEM AND INDICATION OF FAILURE/MALFUNCTION | | | | | | |
| a. Status of Aircraft Warning System for This Part | | | b. Indications of Failure/Malfunction | | | |
| <input type="checkbox"/> Operative <input type="checkbox"/> Inoperative <input type="checkbox"/> NA | | | <input type="checkbox"/> Correct <input type="checkbox"/> Incorrect <input type="checkbox"/> None | | | |
| c. Initial Indication of Failure/Malfunction | | <input type="checkbox"/> (1) Vibration <input type="checkbox"/> (3) Attitude <input type="checkbox"/> (5) Odor <input type="checkbox"/> (7) Smoke or Fire <input type="checkbox"/> (9) Warning System <input type="checkbox"/> (2) Noise <input type="checkbox"/> (4) Inspection <input type="checkbox"/> (6) Fluid <input type="checkbox"/> (8) Other Personnel <input type="checkbox"/> (10) None/Other | | | | |
| 5. TEARDOWN ANALYSIS | | a. Organization Performing | | | b. USASC Control No. | |
| 6. REMARKS (Use additional sheet if required) | | | | | | |
| 7. CASE NO. | a. Date (YYMMDD) | b. Time | c. Acft Serial No. | | 8. OTHER ACFT SERIAL NO. | |

DA Form 2397-8-R; Personal Data Details

Completion instructions for DA Form 2397-8-R, Personnel Data.

Block 1a. Check “definitely” box if person made an error that caused or contributed to the incident. Do not check the “definitely” box unless the relationship of the error to the incident is fully substantiated in the findings of DA Form 2397-1 and analysis part of the DA Form 2397-2. Check the “suspected” box if the individual committed an error that is suspected to have caused or contributed to the incident. Check “no” or “undetermined” box as appropriate.

Block 1b. Check the appropriate box.

Block 2. Most items are self-explanatory. Record hours and tenths of hours as appropriate. For items d through l, the 24-, 48-, and 72-hour periods are calculated to the time of the incident.

Block 3. Most times in block 3 are self-explanatory. The sources for this information will be the individual’s aircrew training folder and the LAS Individual Flight Record. Those items requiring further explanations are indicated below.

Block 3l. Enter the Maintenance / technical manual task number that best describes flight profile (takeoff, climbs, turns, straight and level, hovering autorotation, etc.) that was in progress when the emergency situation developed. An event becomes an emergency whenever an error by the crew, a materiel failure, an obstacle strike, or other unpredictable event creates a need for an emergency response. If no Maintenance / technical manual task applies, leave blank and explain the flight profile/activity in block 9.

Block 3m. Pertains to the Maintenance / technical manual task required to cope with the emergency. A tail rotor strike may result in a loss of anti-torque control, thereby requiring the performance of the task procedures prescribed for an anti-torque malfunction. If no Maintenance / technical manual task applies, leave blank and explain the flight profile/activity in block 9.

Block 3n. If “yes” box is checked, identify in block 9 the condition for which the waiver was fronted and the office authorizing the waiver. If waiver data clarification is needed, enter a brief explanation in block 9.

Block 3o. Report an “S” for satisfactory or “U” for unsatisfactory. If result is “U”, enter a brief explanation in block 9. If the evaluation has been delayed, enter a “dash” to indicate information is not available and explain the delay in block 9.

Block 3p. Enter date of post-incident medical examination or admission to a medical facility for treatment of injuries resulting from the incident. For non-survivors, enter date of autopsy.

Block 3q. Check the appropriate box to indicate if the blood and urine laboratory test required was accomplished.

Block 4. Flight and crew duty experience will be completed for all crewmembers. The source of this data is the individual's DA Form 759 Individual Flight Record. Flight experience will be recorded to the nearest hour (no tenths).

Block 4a(1). Pertains to flight experience, involving US Army operations, by category of aircraft. Combat, imminent danger, and flight experience in incident aircraft is also recorded in this block.

Block 4a(2). Flight experience regardless of duty, not involving US Army operations, e.g., flying clubs, instructional, hobby, pleasure, commercial, etc., is to be entered in this block by category of aircraft.

Block 4a(3). Total time. Self explanatory.

Blocks 4b and e. Duty experience. Block b pertains to rated aviator duties and item e pertains to other crew duty experience. Enter the total time for the duty listed. The source of this information is the individual's DA Form 759 Individual Flight Record.

Block 4c. Flight condition experience. Enter the total flight hour experience in block 4c(1) for flight conditions listed. The source of this information is the individual's DA Form 759 Individual Flight Record.

Block 4d. Monthly flight hours. Pertains to flight time in incident aircraft for the current calendar month plus the preceding 30, 60, and 90 days up to and including the incident flight.

Block 5. Pertains to maintenance, medical, support, and other non-rated personnel only. The information source is the individual's personnel qualification record.

Block 6. Enter the case number shown on the DA Form 2397.

Block 7. Use only for aircraft other than "case aircraft" in incidents involving more than one aircraft. Make entry only on the form identifying the personnel associated with other aircraft.

Block 8. Record toxicological laboratory analysis results. In the "specimen tested" column, enter "blood", "urine", etc., to indicate the source of the specimen; if no specimen was tested, enter "none". Enter "Pos" in the results block for drugs identified as present and the drug name in the appropriate box. If drug(s) was/were administered by medical personnel following the accident but prior to collection of the test specimen, record this information in block 10. Use standard

terminology to report methods and results. Tests are MANDATORY for ALL crewmembers and/or any fatality involved in any Class A through Class C flight or property damage incident even if there seems to be no apparent likelihood of positive results. Timeliness of test is important and the specimens should be acquired as soon as possible following the incident. Significant results should be briefly explained in block 10 and thoroughly discussed in the analysis part of the narrative (DA Form 2397-2). If specimen testing was required but not accomplished, explain why it was not accomplished in block 10.

Block 9. Complete block 9 if block 3n is checked “yes” or autopsy report reveals significant findings of pre-existing diseases or defects.

Block 10. Enter significant medical history pertinent to the accident investigation.

Block 11. Enter the name of the individual referenced in this report.

Block 12. Enter the social security number (SSN) of the individual named in block 11.

Block 13. Enter the pay grade of the individual named in block 11. Grade codes are listed below.

| Code | Description |
|----------------------|------------------------------|
| 01-O10 | Commissioned officer |
| W1-W5 | Warrant officer |
| E1-E9 | Enlisted service member |
| GS1-GS18 & GM13-GM18 | DOD civilian employee |
| WG1-WG18 & WS13-WS18 | Wage board employee |
| X1 | Foreign officer, all grades |
| X2 | Foreign enlisted, all grades |
| CAC | Civilian contractor employee |
| CIV | Non-DOD civilian |
| SAC | Service academy cadet |
| ROTC | ROTC student |
| OTH | Personnel other than above |

Block 14. Enter the sex of the individual named in block 11.

Block 15. Enter the MOS / duty position of the individual named in block 11.

| Code | Description |
|------|-------------------------------------|
| ABC | Aviation battalion commander |
| ADC | Approach/departure controller |
| AMC | Air mission commander |
| AO | Aerial observer |
| AOT | Aerial observer trainee |
| ART | Armament |
| AUC | Aviation unit commander |
| AVT | Avionics technician |
| CE | Crew chief/flight engineer |
| CET | Combat-equipped troops/jumpers |
| CP | Copilot |
| DCO | DA/DOD-level commander / supervisor |

| | |
|-----|--|
| DEP | Design/engineer personnel |
| FCO | Flight Leader |
| FCT | Weather personnel |
| FFT | Crash rescue/firefighters |
| FI | Engineer instructor |
| FSP | Flight service personnel |
| FTM | Fuel team member |
| FTS | Fuel team supervisor |
| GC | Ground unit commander |
| GCA | Final controller |
| GG | Ground guide/"Follow me" |
| M | General mechanic |
| GSY | Other ground support personnel |
| IE | Instrument flight examiner |
| IP | Instructor pilot |
| LCO | Local commander/supervisor |
| MCO | Major commander/supervisor |
| ME | Maintenance test flight evaluator |
| MFP | Manufacturing/rework personnel |
| MS | Maintenance supervisor |
| MO | Flight surgeon/medical attendant |
| MP | Maintenance test pilot |
| OAY | Others aboard aircraft |
| OGY | Others personnel not aboard aircraft |
| OPN | Operations dispatcher, other operations personnel |
| OR | Gunner/technical observer/maintenance personnel/photographer |
| PAX | Passenger |
| PC | Pilot in command |
| PF | Pathfinder |
| PI | Pilot |
| PPM | Powerplant mechanic |
| PT | Pilot trainee |
| PTM | Power train mechanic |
| PTO | Pilot trainee, observer |
| PTR | Pilot trainee, rated |
| SI | Standardization flight engineer instructor |
| SM | Structure/airframe mechanic |
| SP | Standardization instructor pilot |
| TI | Technical Inspector |
| TWC | Tower personnel |
| UNK | Unknown |
| UT | Unit trainer |
| XP | Experimental test pilot |
| ZR | Rated passenger |

Block 16. Enter the personnel service code from the list below for the individual named in block 11.

| Code | Description |
|------|--|
| A | Active Army |
| B | Army Civilian |
| C | Army Contractor |
| D | NAF employee |
| E | Other U.S. military personnel (members of other DOD components on full time active duty) |
| F | Reserve Officer Training Corps (ROTC) |
| G | Military dependant family member of active-duty personnel) |
| H | NG technician, DOD employee |

| | |
|---|---|
| I | NG inactive duty for training |
| J | NG annual training |
| K | NG active duty special work |
| L | NG active guard/reserve |
| M | NG active duty for training other than annual |
| N | Reserve inactive duty training |
| O | Reserve annual training |
| P | Reserve active duty training |
| Q | Reserve active guard/reserve |
| R | Foreign national direct hire |
| S | Foreign national indirect hire |
| T | Foreign national KATUSA |
| U | Foreign national attached USA |
| V | Public |
| W | Not reported |

Block 17. Enter the unit identification code (UIC) of the individual named in block 11.

**TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART IX - PERSONAL DATA**

For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA

**REQUIREMENTS CONTROL SYMBOL
CSOCS-309****1. ROLE OF THIS INDIVIDUAL**

a. Errors That Caused/Contributed to Accident

☐ Definitely ☐ Suspected ☐ None ☐ Undetermined

b. On Controls When Accident Occurred

☐ Yes ☐ No ☐ Undetermined**2. BACKGROUND DATA**

a. Age

b. Hours Awake Prior to Accident

c. Hours Duration Last Sleep Period

d. Hours Slept Last 24 Hours

e. Hours Slept Last 48 Hours

f. Hours Slept Last 72 Hours

g. Hours Worked Last 24 Hours

h. Hours Worked Last 48 Hours

i. Hours Worked Last 72 Hours

j. Hours Flown Last 24 Hours

k. Hours Flown Last 48 Hours

l. Hours Flown Last 72 Hours

3. CREWMEMBER DATA

a. Primary Acft MTDS

b. Alternate Acft MTDS

c. Additional Acft MTDS

d. FAC

☐ 1 ☐ 2 ☐ 3

e. RL In Accident Acft MTDS

☐ 1 ☐ 2 ☐ 3 ☐ NA

f. APART Completed (YYMMDD)

g. Physical Exam Completed (YYMMDD)

h. Most Recent Evaluation Flight In
Accident MTDS Acft (YYMMDD)

i. MTDS Acft Flown In Last 60 Days

(1)

(2)

(3)

j. NVG Qualified ☐ Yes ☐ No

k. Date Qualified In Acft MTDS (YYMMDD)

l. ATM Task Number Associated With Initial
Indication of Emergency

Last Performed (YYMMDD)

m. ATM Task Number Involved In Response
To Emergency

Last Performed (YYMMDD)

n. Medical Waiver ☐ Yes ☐ Noo. Post-Accident Flight Eval (YYMMDD)
Resultp. Post-Accident Medical Exam/Autopsy
(YYMMDD)

q. Required Lab Tests Accomplished

☐ Yes ☐ No**4. FLIGHT AND CREW DUTY EXPERIENCE (Round off to the nearest hour)**

| a. Type Experience And Time | Rotary Wing | Fixed Wing | Total | Imminent Danger | Combat | Acft Aircraft Hrs Design Series |
|-----------------------------|----------------|---------------|-------|--------------------|--------|------------------------------------|
|-----------------------------|----------------|---------------|-------|--------------------|--------|------------------------------------|

(1) Military

(2) Civilian

(3) Total Hours

b. Duty Experience

Duty

CP

PI

PC

UT

IP

IE

SP

MP

ME

XP

Total Hours

c. Flight Condition Experience

Condition

D

N

H

W

NG

DG

NS

DS

TR

AA

Total Hours

d. Monthly Flight Hours Past 3 Months In Accident Acft MTDS

Date

Prev 90

Prev 60

Prev 30

This Mo.

Hours

e. Other Crew Duty Experience

Duty

CE

OR

AO

MO

FI

SI

Total Hours

5. MAINTENANCE AND SUPPORT PERSONNEL DATA

a. PMOS

Title

b. SMOS

Title

c. DMOS

Title

d. Deficient Task No.

e. MOS Verification (1) SQT/SDT ☐ Go ☐ No Go

(2) Overall Percentile _____ %

f. Civilian Job Series or Title

Performance Standards Met For This Task

☐ Yes ☐ No6. CASE
NO.

a. Date (YYMMDD)

b. Time

c. Acft Serial No.

7. OTHER ARCFT SERIAL NO.

| 8. LABORATORY TESTS | | | | | | | |
|----------------------|-----------------|---------|--------------|--|------------------|--|--|
| Type Test | Specimen Tested | Results | Name of Drug | | USASC Code Block | | |
| a. Carbon Monoxide | | | | | | | |
| b. Alcohol/Volatiles | | | | | | | |
| c. Drug Screen | | | | | | | |
| d. Other | | | | | | | |

| 9. HISTORY OF DISEASES/DEFECTS | | | | | | | |
|--------------------------------|---------------------|--------------|---------|-------|---------|------------------|------------------|
| Diagnosis | Method of Discovery | | | | Waivers | | USASC Code Block |
| | Anl Phy | Sick Call | Autopsy | Other | Auth. | Date (YYMMDD) | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

10. REMARKS

| | | | | | | |
|----------------------------|---------|-----------|---------|----------|---------|---------|
| 11. NAME (Last, First, MI) | 12. SSN | 13. GRADE | 14. SEX | 15. DUTY | 16. SVC | 17. UIC |
|----------------------------|---------|-----------|---------|----------|---------|---------|

DA Form 2397-9-R; Injury / Occupational Illness Data Details

Completion instructions for DA Form 2397-8-R, Personnel Data.

Block 1. Check the appropriate box to indicate the highest degree of injury for this individual. Degrees of injury are defined below:

Block 1a. Self-explanatory.

Block 1b. Permanent total disability. Any nonfatal injury or occupational illness that in the opinion of competent medical authority, permanently and totally incapacitates a person to the extent that he cannot follow any gainful employment.

Block 1c. Permanent partial disability. Any injury or occupational illness that does not result in death or permanent total disability but, in the opinion of competent medical authority, results in permanent impairment through loss or loss of use of any part of the body, with the following exceptions:

1. Loss of teeth;
2. Loss of fingernails or toenails;
3. Loss of tips of fingers or tips of toes.

Block 1d. Lost work day. An injury or occupational illness that results in no disability as defined above but results in the individual missing one or more workdays. Days away from work are those workdays (consecutive or cumulative) that the person would have worked but could not because of injury or occupational illness. Excluded are days that the person would not have worked even though able to work, and the day of the injury or onset of occupational illness. Rearrangement of work schedules is not authorized to eliminate the requirement for reporting days away from work cases.

Block 1e. Workday(s) of restricted work activity. An injury or occupational illness in which a workday was not lost but in which the individual:

1. Was assigned to another job on a temporary basis;
2. Worked at a permanent job less than full time;
3. Worked at a permanently assigned job but could not perform all duties normally connected with it; e.g., temporary profile limiting their duties, air crewmember who is grounded, etc.

Block 1f. No lost workday. An injury or occupational illness that did not result in a lost workday nor restricted work activity, but resulted in the individual:

1. Being permanently transferred to another job or terminated.

2. Requiring medical treatment greater than first aid (as defined below).

Block 1g. First aid only. A one – time treatment for minor scratches, cuts, burns, and similar injuries that does not require additional medical attention or any follow–up visits for observation. Such one–time treatment will be considered first aid even if provided by a physician.

Block 1h. Missing and presumed dead: Individual not located at time of report.

Block 2. If block “d” or “e” was checked in block 1, enter number of days away from work, the number of days hospitalized, and days of restricted work activity in spaces provided. Ensure that days away from work (2a) is not inclusive of days hospitalized (2b).

Block 3. If the person was unconscious, enter the duration in hours and minutes, and show the cause and mechanism, if known, in block 5. If none, check none.

Block 4. If amnesia was present, show duration and explain in block 6. If amnesia was not present, check none.

Block 5. Describe individual injuries in descending order of severity and associated cause factors, using the applicable information codes following these instructions.

Column a. Enter number “1” for most severe injury followed by “2,” “3,” etc., until all injuries have been listed. Only seven injuries can be recorded per individual per form. Use additional DA Form 2397–9’s when greater than seven injuries are coded.

Columns b through e. Using information codes listed below, enter the appropriate numeric and/or alpha numeric code in each column. In the appropriate space below the code, enter the word(s) describing the injury.

Injury Body Region

| Code | Description |
|------|-----------------|
| A00 | Body in general |
| B00 | Head, General |
| B01 | Head less face |
| B02 | Brain |
| B03 | Ears |
| B04 | Hair |
| B05 | Scalp |
| B06 | Skull |
| B07 | Temple |
| B08 | Head less face |
| B10 | Face, General |
| B11 | Cheeks |
| B12 | Eyes |

| | |
|-----|-----------------------------------|
| B13 | Forehead |
| B15 | Lips |
| B16 | Mouth |
| B17 | Nose |
| B18 | Teeth |
| B19 | Tongue |
| B20 | Gums |
| B21 | Chin |
| B22 | Face, NFS |
| B23 | Frontal |
| B24 | Ethmoid |
| B25 | Spheroid |
| B26 | Vomer |
| B27 | Occipital Area |
| B28 | Mandible |
| B29 | Maxilla |
| B30 | Nasal |
| B31 | Lacrimal |
| B32 | Palatine |
| B33 | Zygoma / Malar |
| B34 | Temporal |
| B35 | Parietal Area |
| B36 | Multiple Bones (Face) |
| B37 | Multiple Bones (Calvarium) |
| B38 | Multiple Bones (Basilar) |
| B39 | Multiple Bones (Other) |
| B40 | Orbit |
| C00 | Neck, General |
| C01 | Esophagus |
| C02 | Larynx |
| C03 | Trachea |
| C04 | Vertebra, Cervical |
| C05 | Neck, NFS |
| C06 | Vertebra |
| C07 | Vertebra C2 |
| C08 | Vertebra C3 |
| C09 | Vertebra C4 |
| C10 | Vertebra C5 |
| C11 | Vertebra C6 |
| C12 | Vertebra C7 |
| C13 | Invertebral Disk |
| C14 | Odontoid (Atlanto Multiple Axial) |
| C15 | Atlanto-occipital |
| C16 | Jugular Vein |
| C17 | Carotid Artery |
| D00 | Trunk, General |
| D10 | Abdomen, General |
| D11 | Colon |
| D12 | Gall Bladder |
| D13 | Intestines, General |
| D14 | Kidney |
| D15 | Liver |
| D16 | Pancreas |
| D17 | Spleen |
| D18 | Stomach |
| D19 | Abdomen, NFS |
| D20 | Intestines, (large) |
| D21 | Intestines, (small) |

| | |
|-----|----------------------------|
| D30 | Back, General |
| D31 | Scapula |
| D32 | Spinal Cord, General |
| D33 | Vertebra, Multiple |
| D34 | Back, NFS |
| D40 | Chest, General |
| D41 | Clavical |
| D42 | Diaphragm |
| D43 | Heart |
| D44 | Lungs |
| D45 | Mammary |
| D46 | Ribs / Sides |
| D47 | Sternum |
| D48 | Chest, NFS |
| D49 | Aorta |
| D50 | Pelvis, General |
| D51 | Bladder |
| D52 | Buttocks |
| D53 | Genitalia |
| D54 | Hip |
| D55 | Rectum / Anus |
| D59 | Vertebra, Mult-Thoracic |
| D60 | Vertebra T1 |
| D61 | Vertebra T2 |
| D62 | Vertebra T3 |
| D63 | Vertebra T4 |
| D64 | Vertebra T5 |
| D65 | Vertebra T6 |
| D66 | Vertebra T7 |
| D67 | Vertebra T8 |
| D68 | Vertebra T9 |
| D69 | Vertebra T10 |
| D70 | Vertebra T11 |
| D71 | Vertebra T12 |
| D72 | Vertebra, Multi-Lumbar |
| D73 | Vertebra L1 |
| D74 | Vertebra L2 |
| D75 | Vertebra L3 |
| D76 | Vertebra L4 |
| D77 | Vertebra L5 |
| D78 | Sacrum |
| D79 | Coccyx |
| D80 | Invertebral Disc |
| D81 | Vena Cava |
| E00 | Upper Extremities, General |
| E10 | Upper Arm, General |
| E11 | Shoulder |
| E12 | Elbow |
| E20 | Lower Arm, General |
| E21 | Wrist |
| E30 | Hand, General |
| E31 | Finger(s) |
| E33 | Thumb |
| E34 | Hand, NFS |
| F00 | Lower Extremities, General |
| F10 | Leg Upper, General |
| F11 | Knee |
| F20 | Leg Lower, General |

| | |
|-----|----------------|
| F21 | Ankle |
| F22 | Leg Lower, NFS |
| F30 | Foot, General |
| F31 | Arch |
| F32 | Ball |
| F33 | Heel |
| F34 | Toes |
| F35 | Foot, NFS |
| X97 | Not Reported |
| Y99 | Other |
| Z98 | Unknown |

Injury Primary Aspect

| Code | Description |
|------|-----------------------|
| 01 | Right |
| 02 | Left |
| 03 | Bilateral/Both |
| 09 | Medial/Mesial/Midline |
| 98 | Unknown |
| 99 | Other (Specify) |

Injury Secondary Aspect

| | Description |
|----|---------------------------------|
| 04 | Central (internal organs, etc.) |
| 05 | Anterior/Ventral/Front |
| 06 | Posterior/Dorsal/Back |
| 07 | Superior/Cranial/Upper |
| 08 | Inferior/Caudal/Lower |
| 10 | Medial/Mesial/Midline |
| 11 | Whole Body Region, NFS |
| 12 | Whole Body Part, NFS |
| 98 | Unknown |
| 99 | Other (Specify) |

Injury Type

| Code | Description |
|---------------------------|-------------------------|
| A Burns (Chemical) | |
| A00 | Burns, (Chemical) |
| A01 | First Degree |
| A02 | Second Degree |
| A03 | Third Degree |
| A04 | Fourth Degree |
| A05 | Burns, Chemical, NFS |
| B Burns (Thermal) | |
| B00 | Burns, (Thermal) |
| B01 | 1st Degree |
| B02 | 2nd Degree |
| B03 | 3rd Degree |
| B04 | 4th Degree |
| B05 | Burns, Thermal NFS |
| B06 | 1st & 2nd Degree |
| B07 | 1st & 3rd Degree |
| B08 | 2nd & 3rd Degree |
| B09 | 3rd & 4th Degree |
| C Dismemberments | |
| C00 | Dismemberments, General |
| C01 | Amputation |

| | |
|---------------------------------|---|
| C02 | Avulsion (Evisceration) |
| C03 | Decapitation |
| D Environmental Exposure | |
| D01 | Decompression / Bends |
| D02 | Frostbite |
| D03 | Heat Exhaustion |
| D04 | Heatstroke |
| D05 | Hypothermia |
| D06 | Immersion Foot |
| D07 | Noise Injury |
| D08 | Radiation (Other than Burns) |
| D09 | Exposure, NFS |
| E Environmental: Intake | |
| E01 | Asphyxiation |
| E02 | Hypoxia |
| E03 | Ingestion |
| E04 | Aspiration (Suffocation) |
| E05 | Inhalation |
| E06 | Dust diseases of the lung |
| E07 | Respiratory conditions due to toxic agents |
| F Fractures | |
| F00 | Fractures, General |
| F01 | Chip / Wedge |
| F02 | Compound (open) |
| F03 | Compression |
| F04 | Crushed / Depressed |
| F05 | Incomplete (Greenstick) |
| F06 | Simple (closed) |
| F07 | Fracture, NFS |
| F08 | Transverse |
| F09 | Oblique |
| F10 | Linear |
| F11 | Stellate |
| F12 | Comminuted |
| F13 | Fracture-Dislocation |
| F14 | Blowout |
| G Stress Injuries | |
| G01 | Dislocation-Strain |
| G02 | Sprain (wrenching of joint with stretching or tearing of ligaments) |
| G03 | Strain (stretched ligaments or muscles) |
| G04 | Stress Injury, NFS |
| G05 | Disorders associated with repeated trauma |
| H Wounds | |
| H01 | Abrasions (Scraping) |
| H02 | Bites |
| H03 | Blister |
| H04 | Contusion (Bruise, Hematoma) |
| H05 | Crushed |
| H06 | Laceration / Cut |
| H07 | Puncture, Perforation, or Penetration |
| H08 | Transection (Cut across) |
| H09 | Wounds, NFS |
| I Miscellaneous | |
| I01 | Collapsed Lung |
| I02 | Concussion |
| I03 | Dermatitis |
| I04 | Exhaustion (Physical Exhaustion Not Related to Heat or Cold) |
| I05 | Foreign Object Retained |

| | |
|-----|---|
| I06 | Herniation / Rupture |
| I07 | Inflammation (Irritation) |
| I08 | Multiple Fatal Injuries |
| I09 | Internal Injury, NFS |
| I10 | Multiple Injuries, NFS |
| I11 | Flail Chest |
| I12 | Occupational skin diseases or disorders |
| I13 | Poisoning (systemic effects of toxic materials) |
| I14 | Disorders due to physical agents |
| I96 | Injury, NFS |
| I97 | Injury not reported |
| I98 | Injury unknown |

Injury Result

| | Description |
|-----|--------------------------------|
| Z00 | Results, NFS |
| Z04 | Amnesia |
| Z08 | Cardiac Arrest |
| Z10 | Drowned |
| Z12 | Edema |
| Z16 | Embolism |
| Z20 | Emphysema |
| Z24 | Exsanguination |
| Z28 | Hearing Loss |
| Z32 | Hemorrhage |
| Z36 | Repeated Trauma Disorders, NFS |
| Z40 | Hemothorax |
| Z44 | Infection |
| Z48 | Occlusion |
| Z52 | Paralyzed |
| Z56 | Pneumoconioses |
| Z60 | Pneumothorax |
| Z64 | Poisoning |
| Z68 | Trauma Shock (Emotional) |
| Z69 | Trauma Shock (Physical) |
| Z72 | Syncope (Fainting) |
| Z76 | Unconsciousness/Coma (Acute) |
| Z84 | Hemo-pneumothorax |
| Z96 | Occupational Disorders, NFS |
| Z97 | Not Reported |
| Z98 | Unknown |
| Z99 | Other (Specify) |

Column f. A physician or physician's assistant is required to complete the abbreviated injury scale (AIS) block. The reference to complete the AIS block is available at all installation safety offices and medical facilities. If the AIS reference is not available, leave blank and note in the remarks block.

Columns g and h. Enter the action code and qualifier code from list below that best describe the injury mechanism (how the injury occurred).

Mechanism Action

| Code | Description |
|------|-------------|
|------|-------------|

| | |
|----|-----------------------------|
| 01 | Caught in / under / between |
| 02 | Exposure |
| 03 | Struck Against |
| 04 | Struck by |
| 05 | Thrown from |
| 06 | Fell from elevation |
| 07 | Fell from same level |
| 08 | Rubbed / abraded |
| 09 | Bodily reaction |
| 10 | Overexertion |
| 11 | External contact |
| 12 | Ingested |
| 13 | Inhaled |
| 97 | Not Reported |
| 98 | Unknown |
| 99 | Other (Specify in Remarks) |

Mechanism Qualifier

| Code | Description |
|------|--|
| 01 | Aircraft |
| 02 | Aircraft fire |
| 03 | Armor |
| 04 | Ceiling |
| 05 | Collective |
| 06 | Console |
| 07 | Cyclic |
| 08 | Door |
| 09 | Excessive deceleration |
| 10 | External object |
| 11 | Floor |
| 12 | Gunsight |
| 13 | Helmet |
| 14 | Instrument |
| 15 | Internal Object |
| 16 | Intruding Object |
| 17 | Irritating Fluids/Fumes |
| 18 | Litter/Litter support |
| 19 | Main rotor |
| 20 | Multiple injury producing mechanism (MIPM) |
| 21 | Pedals |
| 22 | Restraint system Forces |
| 23 | Seat |
| 24 | Structure |
| 26 | Windshield/Window |
| 27 | Night vision device(s) |
| 28 | Tail Rotor panel |
| 29 | Transmission |
| 97 | Not reported |
| 98 | Unknown |
| 99 | Other (Specify) |

Columns i, j, and k. Enter the subject, action, and qualifier codes from the list below which best describe, from an engineering viewpoint, what aspects of the aircraft contributed to the injury cause factors (why injury occurred). The purpose of these columns is to select those subject, action, and qualifier codes that form a sentence or

phrase that describes what aspect of the engineering/design of the aircraft should be looked at for potential modification to avoid a similar injury in a future similar accident. For example, if the occupants of an aircraft sustained postcrash burns due to fuel lines breaking in the crash sequence, one could code: Subject: "10, Fuel lines," Action: "03, Broke," Qualifier: "07, Improperly."

Cause Factor Subject

| Code | Description |
|------|------------------------------|
| 01 | Aircraft |
| 02 | Armor |
| 03 | Body/Body Part |
| 04 | Canopy Removal |
| 05 | Cargo |
| 06 | Design |
| 07 | Door |
| 08 | Engine |
| 09 | External Objects |
| 10 | Fuel Lines |
| 11 | Fuel tanks/Cell |
| 12 | Fuel vent line |
| 13 | Helmet |
| 14 | Impact |
| 15 | Instrument |
| 16 | Landing Gear |
| 17 | Litter |
| 18 | Internal Objects |
| 19 | Main Rotor |
| 20 | Monkey Harness |
| 21 | Qualifier |
| 22 | Restraint System |
| 23 | Roof/Ceiling System |
| 24 | Seat |
| 25 | Structure |
| 26 | Transmission |
| 27 | Unauthorized Equipment |
| 28 | Upper torso restraint system |
| 29 | Window |
| 30 | Windshield |
| 31 | Night Vision Device(s) |
| 32 | Occupiable Space |
| 33 | Refueling Equipment |
| 34 | Lap Belt Panel |
| 35 | Inertial Reel |
| 97 | Not Reported |
| 98 | Unknown/Unclassified |
| 99 | Other (Specify) |

Cause Factor Action

| Code | Description |
|------|-------------|
| 01 | Absorbed |
| 02 | Allowed |
| 03 | Broke |
| 04 | Buckled |
| 05 | Caused |

| | |
|----|---------------------------|
| 06 | Collapsed |
| 07 | Crushed |
| 08 | Displaced |
| 09 | Exceeded |
| 10 | Flailed |
| 11 | Ignited |
| 12 | Injured |
| 13 | Located |
| 14 | Not provided |
| 15 | Not used |
| 16 | Penetrated |
| 17 | Provided |
| 18 | Ruptured |
| 19 | Separated/Dislodged |
| 20 | Spilled |
| 21 | Stretched |
| 22 | Trapped/Pinned |
| 23 | Used Improperly |
| 24 | Not Restrained/Secured |
| 25 | Allowed Excessive Motion |
| 26 | Injured outside aircraft |
| 27 | Bottomed out |
| 28 | Disintegrated |
| 29 | Penetrated Occupied Space |
| 30 | Injured During Exit |
| 31 | Failed to Fully Stroke |
| 32 | Failed to Attenuate For |
| 97 | Not Reported |
| 98 | Unknown/Unclassified |
| 99 | Other (Specify) |

Cause Factor Qualifier

| Code | Description |
|------|------------------------------|
| 01 | During Exit |
| 02 | Excessive |
| 03 | Excessive Motion |
| 04 | Excessively |
| 05 | Fuel |
| 06 | Human and Design |
| 07 | Improperly |
| 08 | Inadequate |
| 09 | Insufficient |
| 10 | Jagged Edges |
| 11 | Lateral |
| 12 | Longitudinal |
| 13 | Occupiable Space Loading |
| 14 | Outside Aircraft |
| 15 | Properly |
| 16 | Vertical |
| 17 | Inches Limits 6 to 12 inches |
| 18 | Greater than 12 Inches |
| 19 | Less than 6 Inches Clearance |
| 97 | Not Reported |
| 98 | Unknown/Unclassified |
| 99 | Other (Specify) |

Block 6. Enter any additional information which further clarifies information coded on the DA Form 2397–9–R. For instance, if the flight surgeon feels that the available codes do not describe the injuries, the mechanism of injury, or the injury cause factors, this block provides the opportunity for further description. It is imperative that any additional information be linked to a specific block/column on the form.

Block 7. Check the appropriate box to indicate whether or not an autopsy was performed. If an autopsy was not performed, explain why. Use block 6 if additional space is needed.

Block 8. Report the official cause of death, based on an autopsy report, if possible.

Block 9. Check the appropriate duty status for government personnel.

Block 10. Enter the name of the individual referenced in this report.

Block 11. Enter the social security number (SSN) of the individual named in block 11.

Block 12. Enter the pay grade of the individual named in block 11. Grade codes are listed below.

| Code | Description |
|----------------------|------------------------------|
| 01-O10 | Commissioned officer |
| W1-W5 | Warrant officer |
| E1-E9 | Enlisted service member |
| GS1-GS18 & GM13-GM18 | DOD civilian employee |
| WG1-WG18 & WS13-WS18 | Wage board employee |
| X1 | Foreign officer, all grades |
| X2 | Foreign enlisted, all grades |
| CAC | Civilian contractor employee |
| CIV | Non-DOD civilian |
| SAC | Service academy cadet |
| ROTC | ROTC student |
| OTH | Personnel other than above |

Block 13. Enter the sex of the individual named in block 11.

Block 14. Enter the MOS / duty position of the individual named in block 11.

| Code | Description |
|------|--------------------------------|
| ABC | Aviation battalion commander |
| ADC | Approach/departure controller |
| AMC | Air mission commander |
| AO | Aerial observer |
| AOT | Aerial observer trainee |
| ART | Armament |
| AUC | Aviation unit commander |
| AVT | Avionics technician |
| CE | Crew chief/flight engineer |
| CET | Combat-equipped troops/jumpers |
| CP | Copilot |

| | |
|-----|--|
| DCO | DA/DOD-level commander / supervisor |
| DEP | Design/engineer personnel |
| FCO | Flight Leader |
| FCT | Weather personnel |
| FFT | Crash rescue/firefighters |
| FI | Engineer instructor |
| FSP | Flight service personnel |
| FTM | Fuel team member |
| FTS | Fuel team supervisor |
| GC | Ground unit commander |
| GCA | Final controller |
| GG | Ground guide/"Follow me" |
| M | General mechanic |
| GSY | Other ground support personnel |
| IE | Instrument flight examiner |
| IP | Instructor pilot |
| LCO | Local commander/supervisor |
| MCO | Major commander/supervisor |
| ME | Maintenance test flight evaluator |
| MFP | Manufacturing/rework personnel |
| MS | Maintenance supervisor |
| MO | Flight surgeon/medical attendant |
| MP | Maintenance test pilot |
| OAY | Others aboard aircraft |
| OGY | Others personnel not aboard aircraft |
| OPN | Operations dispatcher, other operations personnel |
| OR | Gunner/technical observer/maintenance personnel/photographer |
| PAX | Passenger |
| PC | Pilot in command |
| PF | Pathfinder |
| PI | Pilot |
| PPM | Powerplant mechanic |
| PT | Pilot trainee |
| PTM | Power train mechanic |
| PTO | Pilot trainee, observer |
| PTR | Pilot trainee, rated |
| SI | Standardization flight engineer instructor |
| SM | Structure/airframe mechanic |
| SP | Standardization instructor pilot |
| TI | Technical Inspector |
| TWC | Tower personnel |
| UNK | Unknown |
| UT | Unit trainer |
| XP | Experimental test pilot |
| ZR | Rated passenger |

Block 15. Enter the personnel service code from the list below for the individual named in block 11.

| Code | Description |
|------|--|
| A | Active Army |
| B | Army Civilian |
| C | Army Contractor |
| D | NAF employee |
| E | Other U.S. military personnel (members of other DOD components on full time active duty) |
| F | Reserve Officer Training Corps (ROTC) |
| G | Military dependant family member of active-duty personnel) |

| | |
|---|---|
| H | NG technician, DOD employee |
| I | NG inactive duty for training |
| J | NG annual training |
| K | NG active duty special work |
| L | NG active guard/reserve |
| M | NG active duty for training other than annual |
| N | Reserve inactive duty training |
| O | Reserve annual training |
| P | Reserve active duty training |
| Q | Reserve active guard/reserve |
| R | Foreign national direct hire |
| S | Foreign national indirect hire |
| T | Foreign national KATUSA |
| U | Foreign national attached USA |
| V | Public |
| W | Not reported |

Block 16. Enter the unit identification code (UIC) of the individual named in block 11.

Block 17. Enter the case number shown on DA Form 2397-1-R.

Block 18. Use only in cases involving more than one aircraft. Enter the serial number of other aircraft only on the DA Form(s) 2397-9-R that pertain to personnel injuries associated with the other aircraft.

Block 19. Enter the injury/fatality cost IAW AR 385-40, Table 2-1.

PART X - INJURY/OCCUPATIONAL ILLNESS DATA

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

| | | | | | | | | | | | | | | | | | | | |
|--|-------------------|--|---|---------------------------|--------------------------|--|--|-------------------------------|--|------------|--------------|---|----------------|--------------|-----------------|---|--|-------------------------------|--|
| 1. DEGREE OF INJURY (Check only the most severe injury) | | | | | | | | | | | | | | | | | | | |
| a. <input type="checkbox"/> Fatal | | | | | | d. <input type="checkbox"/> Lost Workday (Days away from work) | | | | | | g. <input type="checkbox"/> First Aid Only | | | | | | | |
| b. <input type="checkbox"/> Permanent Total Disability | | | | | | e. <input type="checkbox"/> Workday of Restricted Activity | | | | | | h. <input type="checkbox"/> Missing and Presumed Dead | | | | | | | |
| c. <input type="checkbox"/> Permanent Partial Disability | | | | | | f. <input type="checkbox"/> No Lost Workday or Restricted Activity | | | | | | | | | | | | | |
| 2. NUMBER OF LOST WORKDAYS | | | | a. Days Away From Work | | | | b. Days Hospitalized | | | | c. Days of Restricted Activity | | | | | | | |
| 3. UNCONSCIOUS | | | | Hrs | | Min | | <input type="checkbox"/> None | | 4. AMNESIA | | | | Hrs | | Min | | <input type="checkbox"/> None | |
| 5. INJURIES | | | Injuries | | | | | | | | | Mechanism | | | Cause Factors | | | | |
| Seq No. a. | Body Region b. | | Primary Aspect c. | Secondary Aspect d. | Inj Type/Result e. | Abbreviated Injury Scale f. | | | | | Action g. | Qualifier h. | Subject i. | Action j. | Qualifier k. | | | | |
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| | | | | | | | | | | | | | | | | | | | |
| 6. REMARKS (Use additional sheet if required) | | | | | | | | | | | | | | | | | | | |
| 7. AUTOPSY PERFORMED | | | a. <input type="checkbox"/> Yes b. <input type="checkbox"/> No | | 8. CAUSE OF DEATH | | | | | | | | 9. DUTY STATUS | | | a. <input type="checkbox"/> On Duty b. <input type="checkbox"/> Off Duty | | | |
| 10. NAME (Last, First, MI) | | | | | | 11. SSN | | | | 12. GRADE | | 13. SEX | 14. DUTY | 15. SVC | | 16. UIC | | | |
| 17. CASE NO. | | | a. Date (YYMMDD) | | | b. Time | | c. Acft Serial No. | | | | 18. OTHER ACFT SERIAL NO. | | | | 19. INJURY COST | | | |

DA Form 2397-10-R; Personnel Protective, Escape, Survival, and Rescue Data

Completion instructions for DA Form 2397-10-R, Personnel Protective, Escape, Survival, and Rescue Data

Block 1. Check the appropriate box. If the “yes” box is checked, ensure that a DA Form 2397-9-R is completed for this individual.

Block 2. Personnel protective/restraint/survival equipment. The first column lists the major, common items of equipment worn/used by air-crewmembers and passengers. Report ONLY those items which had a role in the cause/prevention/reduction of an injury or failed to function as designed. Also list in block 2(o) or 2(p) other protective/survival items of equipment which, if available, could have prevented/reduced an injury or assisted in the rescue and survival efforts. Complete the columns to the right of each item that had a role in the accident, as follows: For columns (2) – (9) enter “Y” for “yes”, “N” for “no”, and “U” for “unknown.” For column 10, select the appropriate equipment information codes from Table 3-11.

1. **Column (1) – Type.** Enter the type of equipment in the “type” column; e.g., helmet; enter SPH – 4, SPH – 4B; visor; enter clear, or tinted, or anti – laser; glasses; enter prescription, nonprescription, tinted, untinted, contact lenses, inserts, anti-laser, etc.; flight suit: enter nomex, etc.
2. **Column (2) – Required.** Enter “Y” for items that were required for the mission by directives; i.e., Army regulations, major command/ unit SOPs, etc., or “N” for items not required, but which could have reduced the injury severity.
3. **Column (3) – Available.** Make appropriate entry for each applicable item that was available to the individual.
4. **Column (4) – Used.** Make appropriate entry for each applicable item used. Just because an item was available does not mean it was used. Used pertains to the use of an item as intended for the condition/ situation.
5. **Column (5) – Produced injury.** An item of equipment may have produced an injury by its use or by its malfunction. For example, a lapbelt may have produced an injury to the individual (bruise on hip) but still may have prevented or reduced further injuries.
6. **Column (6) – Allowed injury.** An item of equipment may have allowed injury due to the forces of the accident exceeding the design of the equipment, or an individual not properly wearing or

utilizing the item; i.e., the chin strap of the helmet not being secured.

7. **Column (7) – Prevented injury.** An item may have prevented an injury by its use even though the item received damage; e.g., damage was done to the helmet, but the individual did not receive an injury. If no injury occurred to the area protected by the item then enter “Y.”
8. **Column (8) – Reduced injury.** An item may have reduced the severity of an injury; e.g., the individual received a severe blow to the head and incurred a head injury, but the helmet reduced the severity of the injury.

Note: Columns (6) and (7) cannot be marked “Y” for the same item. An item cannot allow and prevent an injury at the same time. Likewise columns (7) and (8) cannot be marked “Y” for the same item. If an injury is prevented, there is nothing to reduce.

9. **Column (9) – Functioned as designed.** This column is used to indicate the performance of equipment during the accident sequence to include rescue and survival. For example, if it is determined that the item performed the job for which it was intended, enter “Y” for “yes.” If the item was damaged, explain the damage in the “information codes” column. For all items that did not perform their intended function, enter “N” for “no” in the “functioned as designed” column and explain in the “information codes” column with the appropriate codes.
10. **Column (10) – Information codes.** The four columns under this title are used to report equipment problems/conditions pertaining to the performance of personnel, protective, restraint, and survival equipment. There are four blocks provided for each item of equipment to permit the identification of up to four separate problems/conditions. Each item with a problem/condition will be coded with a four-digit information code from the list below, if a helmet dislodged and the individual received a head injury due to its loss, enter “N” in columns (7), (8) and (9) for the helmet row and enter the code 1122 in the “information codes” column; i.e., 11 (dislodged), 2 (nape strap), 2 (loose). All undamaged items that performed their job do not require codes in the “information codes” column.

| Retention | | Component | | Condition | |
|-----------|---|-----------|---------------|-----------|-----------|
| Helmet | | | | | |
| 10 | Retained | 0 | All | 0 | No Damage |
| 11 | Dislodged from acceleration (no blow to helmet) | 1 | Chin Strap | 1 | Missing |
| 12 | Dislodged from blow | 2 | Nape Strap | 2 | Loose |
| | | 3 | Snap Fastener | 3 | Torn |

| | | | | | |
|--|---|------------------|------------------------------------|------------------|---------------------------------------|
| | | 4 | Attachments | 4 | Burned |
| | | 5 | Shell | 5 | Slipped/Stretched |
| | | 6 | Strap Slide Fastener | 6 | Worn improperly / Improperly fitted |
| | | 7 | Pads | 7 | Fractured or Punctured |
| | | 8 | Suspension | 8 | Scraped/System Scratched |
| | | 9 | Crushable Liner | 9 | Compressed to half original thickness |
| Note: Helmet, retained, shell fractured. Enter Code "1057." If LASER visor used, so indicate and include date of issue in block 7 | | | | | |
| Retention | | Component | | Condition | |
| 20 | Retained | 1 | Facepiece | 0 | No Damage |
| 21 | Dislodged | 2 | 2 Housing (cover) | 1 | Shattered |
| | | 3 | Track | 2 | Cracked |
| | | 4 | Screws | 3 | Punctured |
| | | 5 | Adjusting knob | 4 | Separated |
| | | 6 | All | 5 | Stripped |
| | | 9 | Other | 6 | Burned |
| | | | | 7 | Missing |
| | | | | 8 | Scratched |
| | | | | 9 | Other |
| Note: Visor, retained, facepiece cracked. Enter Code "2012." | | | | | |
| Glasses | | | | | |
| Retention | | Component | | Condition | |
| 30 | Retained | 1 | Lens(es) | 0 | No Damage |
| 31 | Dislodged | 2 | Frame(s) | 1 | Shattered |
| | | 3 | Earpiece | 2 | Broken |
| | | 4 | All | 3 | Bent |
| | | 9 | Other | 4 | Separated |
| | | | | 5 | Missing |
| | | | | 6 | Burned |
| | | | | 7 | Scratched |
| | | | | 9 | Other |
| | | | | | |
| | | | | | |
| Note: Glasses, retained, lenses shattered. Enter Code "3011." | | | | | |
| Flight Suit/Flight Gloves/Flight Jacket/Boots/Other Clothing | | | | | |
| Retention | | Component | | Condition | |
| 40 | Cotton, fire retarded treated | 0 | All | 0 | No Damage |
| 40 | Cotton, non-fire retardant | 1 | Sleeves up | 1 | Torn |
| 42 | Wool | 2 | Sleeves down | 2 | Burned |
| 43 | Leather | 3 | Shirt out of pants | 3 | Melted or open |
| 44 | Synthetics, non-fire retardant; e.g., Nylon | 4 | Pants out of or bloused over boots | 4 | Damaged, NFS |
| 45 | Fire retardant synthetics: e.g., Nomex | 5 | Short sleeves | 5 | Missing |
| 46 | Other | 6 | Worn properly | 9 | Other |
| | | 7 | Other | | |
| | | 9 | Other | | |

| Note: Flight suit (cotton), non-fire retardant; sleeves rolled up, burned. Enter Code "4112." In the event crewmembers are wearing other than Nomex; i.e., Army green shirt/pants/blouse/shirt, etc., which causes a problem/condition, enter the item(s) of clothing in the blank space (line h "other clothing"), specify type, check the appropriate columns, and enter the four-digit information codes in the "information code column." Restraint Equipment Codes (Items I through M) | | | | | |
|--|----------------------|-----------|-------------------------|-----------|--------------------------|
| Lap Belt/Shoulder Harness/Gunner Harness/Inertial Reel | | | | | |
| Retention | | Component | | Condition | |
| 50 | Webbing (Strap/belt) | 1 | Broke | 1 | At end fitting |
| 51 | Hardware fittings | 2 | Slipped | 2 | At anchor fitting |
| 52 | Lock | 3 | Stretched | 3 | At buckle |
| 53 | Cable | 4 | Torn/cut | 4 | At slide adjustment |
| 54 | Mount | 5 | Failed to properly lock | 5 | At guide lock |
| 55 | Lap Belt, General | 6 | Worn loosely | 6 | In automatic |
| 56 | Shoulder Harness | 7 | Bent | 7 | In manual lock, General |
| 57 | Inertial Reel | 8 | Torn Free | 8 | Between attaching points |
| | | 9 | Burned/Melted | 9 | Other General |
| | | 0 | Missing | 0 | All locations |
| Note: Shoulder harness broke at guide. Enter Code "5615." Inertial reel lock failed to lock in automatic lock. Enter Code "5256." | | | | | |
| Seat/Litter | | | | | |
| Retention | | Component | | Condition | |
| 60 | Back Rest | 1 | Bent/Distorted | 1 | Front |
| 61 | Seat Pan | 2 | Broken | 2 | Rear |
| 62 | Support/Legs | 3 | Bottomed out | 3 | Right |
| 63 | Anchor fittings | 4 | Displaced | 4 | Left |
| 64 | Track | 5 | Torn/Ripped | 5 | Center |
| 65 | Brace | 6 | Torn free | 6 | Longitudinal |
| 66 | Pole or Frame | 7 | Stroked | 7 | Vertical |
| 67 | Canvas/Netting | 8 | Did not stroke | 8 | Lateral/Diagonal |
| 68 | Energy attenuator | 9 | Missing | 9 | All |
| 69 | Litter support | 0 | Burned/melted | 0 | Removed/not installed |
| 70 | Armor, General | | | | |
| 73 | Seat, General | | | | |
| 74 | Litter Carousel | | | | |
| Note: The front leg(s) of a pilot's seat was/were torn free. Enter Code "6261." A longitudinal energy attenuator stroked on impact. Enter Code "6876." The litter carousel had been removed, by direction of the unit commander, to facilitate rapid loading of patients during combat conditions. Enter Code "7490." | | | | | |

11. **Survival equipment components.** The empty spaces in block 2 (o and p) are to be used to report problems/conditions with specific items of survival equipment/components. These are to be entered in the "information codes" columns using four-digit codes. More than one problem/condition may apply to any of the survival equipment/components. The first two digits are obtained from the survival equipment/ component list and the second two digits are obtained from the problem/ condition code at Table 3-12. Examples are:

- a. An aviator's SDR-5/E strobe light failed during use because the battery became inoperative. Enter STROBELIGHT in one

of the empty spaces (o or p). The “type” would be entered as SDR–5/E. Any other column across the page may be used as applicable. The first four–digit code entered in the first “information codes” column should be 8438; the second four–digit code should be 8440.

- b. An aviator could not get a survival radio before the mission because the radios were locked up in supply. Enter SURVIVAL RADIO in an available empty space (o or p). The “type” would be entered as PRC–90. The four–digit code entered in the “information codes” column would be 8101.
- c. In the event of a non-survivable accident in which there were no attempts to use the survival equipment/components, no entry is required unless the accident investigation board feels such reporting would benefit accident research/analyses.
- d. If an item of equipment is used that is personal property (non–issue); i.e., pocket knife or plastic compass, and a problem/condition exists; e.g., “lost,” enter the item in blank spaces o or p (block 2) as “pocket knife” and “personal” in the “type” column. The four–digit code in the “information code” column should be 9936.

Block 3. Personnel Evacuation/Escape.

Block 3a. Method of Escape. Enter the appropriate information codes from the list below in the space provided.

| Code | Description |
|------|---------------------------------------|
| 1 | Did not egress; e.g., fatally injured |
| 2 | Exit unassisted |
| 3 | Assistance required |
| 4 | Blown/thrown out/fell out |
| 5 | Jumped prior to impact |
| 7 | Unknown if attempt was made |
| 8 | Other (specify in Remarks) |
| 9 | Egress method undetermined |

Block 3b. Location in aircraft. Enter individual’s location in the aircraft at the time of the accident in the boxes provided using the codes from the list below. For example, an aviator was in the cockpit, forward section, left side, facing forward, in his seat. Code in sequential blocks 1, 1, 2, 1, 2 (one number per block).

| Code | Description |
|------------------------------|----------------------------|
| 1 | Cockpit |
| 2 | Engineer |
| 3 | Passenger |
| 4 | Gunner |
| 5 | Crew Chief |
| 8 | Other (specify in Remarks) |
| 9 | Undetermined |
| Longitudinal Location | |

| | |
|-------------------------|-----------------|
| 1 | Forward section |
| 2 | Center section |
| 3 | Aft section |
| 9 | Undetermined |
| Lateral Location | |
| 1 | Center |
| 2 | Left side |
| 3 | Right side |
| 9 | Undetermined |
| Direction Facing | |
| 1 | Forward |
| 2 | Aft |
| 3 | Sidefacing |
| 9 | Undetermined |
| Use of Seat | |
| 1 | Not in seat |
| 2 | In seat |
| 3 | Litter |
| 9 | Undetermined |

Block 3c. Exit attempted. Enter information code(s) from the list below in order and in sequence if more than one exit attempt was made. The last coded entry, if more than one exit was attempted, will be the exit used by the individual to egress; e.g., the normal exit was tried but it jammed, so exit was made through an opening in the aircraft wreckage. Code “1” in the first box and code “3” in the second box.

| Code | Description |
|------|------------------------------|
| 1 | Normal exit |
| 2 | Emergency exit |
| 3 | Opening in aircraft wreckage |
| 4 | Cut through canopy |
| 5 | Canopy removal system |
| 6 | Cargo hatch |
| 8 | Other (specify in Remarks) |
| 9 | Undetermined |
| 0 | Fatal—None attempted |

Block 3d. Exit used. Enter the code from the list below for actual exit used. The exit used may often be the same as the exit attempted.

| Code | Description |
|------|------------------------------|
| 1 | Normal exit |
| 2 | Emergency exit |
| 3 | Opening in aircraft wreckage |
| 4 | Cut through canopy |
| 5 | Canopy removal system. |
| 6 | Cargo hatch |
| 8 | Other (specify in Remarks) |
| 9 | Undetermined |
| 0 | Fatal—None used |

Block 3e. Aircraft attitude at time of escape. Enter information code from Table 3–17 to best describe the attitude of the aircraft at time of escape.

Block 3f. Cockpit/cabin condition. Enter the cockpit/cabin condition code from the list below. Consider only that portion of the aircraft this individual occupied at the time of the accident. Disregard postcrash fire damage (see instructions for DA Form 2397–1–R for definitions of the following terms):

| Code | Description |
|------|----------------------|
| 1 | No damage |
| 2 | Survivable |
| 3 | Partially survivable |
| 4 | Non-survivable |
| 9 | Undetermined |

Block 3g. Escape difficulties. From the list below, select those difficulties the individual experienced. A total of six may be selected. Enter only one two–digit code per block. Occupants fatally injured during the mishap do not require an entry.

| Code | Description |
|------|---|
| 01 | Difficulty locating canopy jettison mechanism |
| 02 | Difficulty releasing canopy/door |
| 03 | Difficulty releasing restraints |
| 04 | Difficulty reaching exit due to obstructions |
| 05 | Difficulty reaching exit due to injuries |
| 06 | Difficulty reaching exit due to aircraft attitude |
| 07 | Difficulty reaching exit due to personal equipment hang up |
| 08 | Canopy/door jettison problem |
| 09 | Canopy/door jettison failure (automatic) |
| 10 | Could not open canopy/door (mechanical failure) |
| 11 | Could not open canopy/door (jammed due to structural deformation) |
| 12 | Could not open canopy/door (Other, specify in remarks) |
| 13 | Could have but did not open canopy/door |
| 14 | Exit inaccessible (out of reach) |
| 15 | Hampered by controls |
| 16 | Hampered by body armor |
| 17 | Hampered by seat armor |
| 18 | Hampered by seat |
| 19 | Hampered by airframe structure |
| 20 | Hampered by components of power train |
| 21 | Hampered by cargo or loose equipment |
| 22 | Hampered by armament system components |
| 23 | Hampered by clothing |
| 24 | Hampered by injuries |
| 25 | Personal equipment factor (Other than hang–up) (specify in Remarks) |
| 26 | Hampered by others aboard |
| 27 | Hampered by high temperature of exit surfaces |
| 28 | Parachute entanglement |
| 29 | Failure of lapbelt to open |
| 30 | Smoke, fumes |
| 31 | Fire |
| 32 | Spilled fluids |
| 33 | Confusion |

| | |
|----|--|
| 34 | Anthropometric problem |
| 35 | Unconscious |
| 36 | Darkness – no visual reference |
| 37 | Cold |
| 38 | In rushing water |
| 39 | Intruding object (tree, rock, aircraft structure, etc.) (specify in Remarks) |
| 40 | Lack of emergency evacuation during preflight briefing |
| 41 | Lack of in-flight warning |
| 42 | Briefing not followed |
| 43 | Panic |
| 44 | Disorientation |
| 45 | Dazed |
| 98 | Other (specify in Remarks) |
| 99 | Undetermined |
| 00 | None |

Block 4. Cumulative lapsed time for rescue. Enter local time in the appropriate blocks using the 24-hour clock. Lapsed time will be the cumulative number of hours/minutes from time of the accident for each phase. Leave blank if fatally injured at impact.

Block 5. Distance from accident site to actual rescue vehicle at time of accident. Enter nautical miles (NM) for airborne rescue vehicles or statute miles (SM) for ground rescue vehicles.

Block 6. Personnel survival/rescue. Enter the appropriate information codes in the spaces provided. Use one two-digit code per block.

Block 6a. Survival problems encountered. Review the list below for potential problems this individual may have encountered and enter codes sequentially in the boxes provided. Occupants fatally injured during crash do not require an entry for items a through e.

| Code | Description |
|------|--|
| 01 | Inadequate flotation gear |
| 02 | Inadequate cold weather gear |
| 03 | Lack of signaling equipment |
| 04 | Lack of other equipment (specify in Remarks) |
| 05 | Entanglement (parachute) |
| 06 | Dragging (parachute) |
| 07 | Parachute hardware problems |
| 08 | Entrapment in aircraft |
| 09 | Pulled down by sinking chute |
| 10 | Pulled down by body armor |
| 11 | Unfamiliar with procedure |
| 12 | Confused |
| 13 | Incapacitated by injury |
| 14 | Poor physical condition |
| 15 | Exposure (heat, cold, sunburn) |
| 16 | Fatigue |
| 17 | Weather |
| 18 | Topography |
| 19 | Darkness |
| 20 | Thrown from raft |
| 21 | Hampered by rotor downwash |
| 22 | Problem boarding rescue vehicle |

| | |
|----|----------------------------|
| 23 | Thirst |
| 24 | Hunger |
| 25 | Insects |
| 26 | Sharks |
| 27 | Unfamiliar with equipment |
| 28 | Dazed |
| 29 | Animals |
| 30 | No problems encountered |
| 98 | Other (specify in Remarks) |

Block 6b. Means used to locate individual. Enter, in sequence, information codes from the list below for means used to locate individual.

| Code | Description |
|------|--|
| 01 | Survivor located rescuers |
| 02 | Accident observed |
| 03 | Accident site located w/o aid of signals or equipment |
| 04 | Individual located w/o aid of signals or equipment |
| 05 | Other aircraft orbiting scene to direct rescue personnel |
| 06 | Radio or radar vector or DF steer |
| 07 | Aircraft radio after mishap |
| 08 | Radar chaff |
| 09 | Sonar buoy |
| 10 | Walkie-talkie |
| 11 | Fire |
| 12 | Beacon (emergency locator transmitter) |
| 13 | Aircraft radio prior to mishap |
| 14 | Radio (survival type) |
| 15 | Telephone |
| 16 | Corner reflection |
| 17 | Reflective tapes |
| 18 | Mirror |
| 19 | Reflective surface other than code 16, 17, or 18 19 (specify in remarks) |
| 20 | Raft |
| 21 | Flight clothing |
| 22 | Parachute |
| 23 | Signal flare |
| 24 | Smoke flare |
| 25 | Aircraft lights |
| 26 | Pen gun flare |
| 27 | Tracers |
| 28 | Strobe light |
| 29 | Flashlight |
| 30 | Signal wand |
| 31 | Smoke |
| 32 | Dye marker |
| 33 | Whistle |
| 34 | Voice |
| 35 | Gunfire |
| 36 | Signals on surface |
| 37 | Not applicable |
| 98 | Other (specify in Remarks) |

Block 6c. Rescue equipment used. Enter code in sequence of items used from the below list.

| Code | Description |
|------|----------------------------|
| 01 | Sling |
| 02 | Seat |
| 03 | Cargo net |
| 04 | Rope |
| 05 | Life ring |
| 06 | Basket |
| 07 | Axe |
| 08 | Saw |
| 09 | Raft |
| 10 | Webbing cutters |
| 11 | Cable |
| 12 | Grapnel |
| 13 | Boarding ladder |
| 14 | Knife |
| 15 | Makeshift carrier/support |
| 16 | First aid equipment |
| 17 | Forest penetrator seat |
| 18 | Helicopter platforms |
| 19 | Stretcher/litter |
| 20 | Cable cutters |
| 21 | Helicopter rescue boom |
| 22 | Not applicable |
| 98 | Other (specify in Remarks) |

Block 6d. Factors that helped rescue. Enter codes from the list below which assisted in the rescue of the individual.

| Code | Description |
|------|--|
| 01 | Rescue personnel training |
| 02 | Training of person to be rescued |
| 03 | Aircraft emergency escape means |
| 04 | Personal equipment |
| 05 | Accident plans |
| 06 | Availability of rescue equipment |
| 07 | Survivor's techniques |
| 08 | Suitability of rescue equipment |
| 09 | Coordination of rescue effectors |
| 10 | Survival training (specify in Remarks) |
| 11 | Emergency locator transmitter |
| 12 | Electronic tracking equipment |
| 13 | Not applicable |
| 98 | Other (specify in Remarks) |

Block 6e. Factors that complicated rescue. Enter the code from the list below which complicated the rescue of the individual.

| Code | Description |
|------|---|
| 01 | Failure of rescue vehicle (mechanical problems) |
| 02 | Inadequacy of rescue vehicle |
| 03 | Failure of rescue equipment |
| 04 | Inadequacy of rescue equipment |
| 05 | Inadequacy of rescue personnel |
| 06 | Inadequate medical equipment |
| 07 | Inadequate medical facilities |
| 08 | Vehicle operator factor (proof procedure) |
| 09 | Rescue crewman assist hesitancy |
| 10 | Fire |

| | |
|----|---|
| 11 | Entrapment in aircraft |
| 12 | Physical limitations of rescue personnel |
| 13 | Physical limitations of person rescued |
| 14 | Carelessness by rescue personnel |
| 15 | Inappropriate actions of person rescued |
| 16 | Rescue vehicle accident |
| 17 | Communication problems |
| 18 | Entanglement by deployed parachute |
| 19 | Topography |
| 20 | Interference from other vehicles |
| 21 | Victim pulled away by extreme forces |
| 22 | Weather |
| 23 | Darkness |
| 24 | Weight/drag problems due to parachute |
| 25 | Hampered by equipment of person rescued |
| 26 | Floating debris |
| 27 | Primary rescuer delayed by other rescuers |
| 28 | Hampered by helicopter downwash |
| 29 | Head wind |
| 30 | Poor visibility |
| 31 | High sea state |
| 32 | Mechanical problems |
| 33 | Other obstructions (specify in Remarks) |
| 34 | Rescuers lost |
| 35 | No problems |
| 36 | Vehicle operator not available |
| 37 | Vehicle not ready |
| 38 | Vehicle crew not available |
| 39 | Communication breakdown |
| 40 | Completing previously assigned duties |
| 41 | Lack of information about crash site |
| 42 | Poor radio reception/transmission |
| 43 | Telephone line busy |
| 44 | Poor radio discipline |
| 45 | Aircraft radio equip. inoperative |
| 46 | Poor radio procedures |
| 47 | Lack of emergency locator transmitter |
| 48 | Lack of electronic tracking equipment |
| 98 | Other (specify in Remarks) |

Block 6f. Individual's physical condition. Enter the codes from the below list which best describes the individual's physical condition.

| Code | Description |
|------|--------------------------|
| 01 | Fully able to assist |
| 02 | Partially able to assist |
| 03 | Immobile or unconscious |
| 04 | Fatal |

Block 6g. Vehicle(s) actually performing evacuation. Enter the type vehicle(s) performing the evacuation. If the vehicle is an aircraft, enter the mission, type, design and series; i.e., UH-1H. if vehicle is a motor vehicle, state type; i.e., military ambulance, civilian ambulance, private auto, etc.

Block 6h. Other vehicles assisting in rescue. Refer to “g” above and enter the type vehicle(s) which assisted in the rescue.

Block 7. Remarks. Explain failures, malfunctions, injuries, and other problems not adequately defined by code terms. When “other” is coded, use this block to explain details.

Blocks 8. Self-explanatory.

Block 9. Enter the individual's social security number.

10. Block 10. Enter grade code. Select code from the list below.

| Code | Description |
|----------------------|------------------------------|
| 01-O10 | Commissioned officer |
| W1-W5 | Warrant officer |
| E1-E9 | Enlisted service member |
| GS1-GS18 & GM13-GM18 | DOD civilian employee |
| WG1-WG18 & WS13-WS18 | Wage board employee |
| X1 | Foreign officer, all grades |
| X2 | Foreign enlisted, all grades |
| CAC | Civilian contractor employee |
| CIV | Non-DOD civilian |
| SAC | Service academy cadet |
| ROTC | ROTC student |
| OTH | Personnel other than above |

Block 11. Enter “M” to indicate male or “F” to indicate female.

Block 12. Enter duty code. For crewmembers enter the duty code recorded on the DA Form 2408–12. For other personnel, select code from list at Table 3–5.

Block 13. Enter service code. Select service code from list the list below.

| Code | Description |
|------|--|
| A | Active Army |
| B | Army Civilian |
| C | Army Contractor |
| D | NAF employee |
| E | Other U.S. military personnel (members of other DOD components on full time active duty) |
| F | Reserve Officer Training Corps (ROTC) |
| G | Military dependant family member of active-duty personnel) |
| H | NG technician, DOD employee |
| I | NG inactive duty for training |
| J | NG annual training |
| K | NG active duty special work |
| L | NG active guard/reserve |
| M | NG active duty for training other than annual |
| N | Reserve inactive duty training |
| O | Reserve annual training |
| P | Reserve active duty training |
| Q | Reserve active guard/reserve |
| R | Foreign national direct hire |
| S | Foreign national indirect hire |
| T | Foreign national KATUSA |

| | |
|---|-------------------------------|
| U | Foreign national attached USA |
| V | Public |
| W | Not reported |

Block 14. Enter a 6–digit UIC of unit to which this individual was assigned at time of accident.

Block 15. Enter the case number shown on DA Form 2397–1–R.

Block 16. Use only in cases involving more than one aircraft and make entry only on the form identifying personnel from the other aircraft.

**TECHNICAL REPORT OF U.S. ARMY AIRCRAFT ACCIDENT
PART XI - PERSONNEL PROTECTIVE/ESCAPE/SURVIVAL/RESCUE DATA**

For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA

REQUIREMENTS CONTROL SYMBOL
CSOCS-309**1. DID THIS INDIVIDUAL SUSTAIN AN INJURY OR OCCUPATIONAL ILLNESS BECAUSE OF ACCIDENT?**
(NOTE: If "yes" box is checked, ensure a DA Form 2397-9-R is completed for this individual)☐ Yes ☐ No**2. PERSONNEL PROTECTIVE/RESTRAINT/SURVIVAL EQUIPMENT**

| Item | Type | Re- quired | Avail- able | Used | Pro- duced Injury | Al- lowed Injury | Pre- vented Injury | Re- duced Injury | Func- tioned as De- signed (9) | Information Codes | | | |
|-----------------------|------|---------------|----------------|------|-------------------------|------------------------|--------------------------|------------------------|--|-------------------|--|--|--|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | | | |
| a. Helmet | | | | | | | | | | | | | |
| b. Visor | | | | | | | | | | | | | |
| c. Glasses | | | | | | | | | | | | | |
| d. Flight Suit | | | | | | | | | | | | | |
| e. Flight Gloves | | | | | | | | | | | | | |
| f. Flight Jacket | | | | | | | | | | | | | |
| g. Boots | | | | | | | | | | | | | |
| h. Other Clothing | | | | | | | | | | | | | |
| i. Lap Belt | | | | | | | | | | | | | |
| j. Shoulder Harness | | | | | | | | | | | | | |
| k. Gunner Harness | | | | | | | | | | | | | |
| l. Inertia Reel | | | | | | | | | | | | | |
| m. Seat/Litter | | | | | | | | | | | | | |
| n. Survival Equipment | | | | | | | | | | | | | |
| o. | | | | | | | | | | | | | |
| p. | | | | | | | | | | | | | |

3. PERSONNEL EVACUATION/ESCAPE

Information Codes

| | | | | | | | | | | | | | |
|------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|
| a. Method of Escape | | | | | | | | | | | | | |
| b. Location in Aircraft | | | | | | | | | | | | | |
| c. Exit Attempted | | | | | | | | | | | | | |
| d. Exit Used | | | | | | | | | | | | | |
| e. Aircraft Attitude During Escape | | | | | | | | | | | | | |
| f. Cockpit/Cabin Conditions | | | | | | | | | | | | | |
| g. Escape Difficulties | | | | | | | | | | | | | |

4. LAPSED TIME FOR RESCUE

Date

Hour of Day

Lapsed Time

MM

DD

HR

MIN

HR

MIN

**5. DISTANCE FROM ACCIDENT TO ACTUAL
RESCUE VEHICLE AT TIME OF ACCIDENT**

| | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|---------------------------------------|--|--|--|
| a. Notification of Rescue Personnel | | | | | | | | | | | | | |
| b. Individual Physically Reached | | | | | | | | | | | | | |
| c. Individual Actually Aboard Rescue Vehicle | | | | | | | | | | | | | |
| d. Rescue Completed/Abandoned | | | | | | | | | | | | | |
| | | | | | | | | | | a. To Aircraft in Nautical Miles | | | |
| | | | | | | | | | | b. To Ground Vehicle in Statute Miles | | | |

6. PERSONNEL SURVIVAL/RESCUE

Information Codes

| | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| a. Survival Problems Encountered | | | | | | | | | | | | | |
| b. Means Used to Locate Individual | | | | | | | | | | | | | |
| c. Rescue Equipment Used | | | | | | | | | | | | | |
| d. Factors That Helped Rescue | | | | | | | | | | | | | |
| e. Factors Complicating Rescue | | | | | | | | | | | | | |
| f. Individual Physical Condition | | | | | | | | | | | | | |
| g. Vehicles Actually Performing Evacuation (Specify) | | | | | | | | | | | | | |
| h. Other Vehicles Assisting in Rescue (Specify) | | | | | | | | | | | | | |

7. REMARKS (Use additional sheet if required)

| | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

| | | | | | | | | | | | | | |
|----------------------------------|--|------------------|--|---------------|--|--------------------|--|------------------|--|----------------------------------|-----------------|----------------|----------------|
| 8. NAME (Last, First, MI) | | | | 9. SSN | | | | 10. GRADE | | 11. SEX | 12. DUTY | 13. SVC | 14. UIC |
| 15. CASE NO. | | a. DATE (YYMMDD) | | b. Time | | c. Acft Serial No. | | | | 16. OTHER ACFT SERIAL NO. | | | |

DA Form 2397-11-R; Weather and Environmental Data

Completion instructions for DA Form 2397-11-R, Weather and Environmental Data

Block 1. Check the appropriate box to indicate if weather or other environmental condition caused or contributed to the accident. Weather is a definite or suspected factor only when not forecast, improperly forecast or when it was unavoidable in the accident sequence of events. See chapter 2, paragraph 2-6, for a complete discussion on determining the environmental role in the accident.

Block 2a. Specify in degrees centigrade. If the temperature is actual, line out "est".

Blocks 2b and c. Enter the altimeter setting in inches of mercury (Hg) and altimeter reading in feet at the time of the accident. This must be taken as soon as possible from the accident aircraft's altimeter. If the altimeter was damaged so that the setting cannot be determined, enter "unknown" and explain in block 14 or continuation sheet. Do not use estimates.

Block 2d. Prefix the pressure altitude with a plus or minus.

Block 2e. Check the appropriate box which reflects the general weather conditions at the time and location of the accident.

Block 3. When a scattered, broken, or overcast sky condition is checked, specify the altitude in the space provided.

Block 4. Check the appropriate box.

Block 5. Enter visibility in nautical miles.

Block 6. Obstructions to visibility are shown in the two basic categories of "natural" and "induced." If visibility was restricted, it is extremely important to accurately distinguish between natural and induced.

Block 6a. More than one may apply; e.g. haze and smoke may both have existed at the same time during the accident sequence; therefore, both would be checked.

Block 6b. Check the induced obstructions to visibility that existed during the accident sequence. For example, if the crew lost all reference when they came to a hover due to rotor-wash picking up and circulating a large cloud of dust, check block 6b(3), "blowing dust."

Block 7. Use existing winds at the time of the accident.

Block 7a. Enter the winds aloft at the assigned or en-route altitude.

Block 7b(1). Enter surface wind direction in degrees magnetic. If wind direction is varying e.g., “350 variable 010,” enter the average wind direction on this line “360/10”.

Block 7b(2). Enter surface wind velocity in knots and gust spread. If surface winds are gusty, enter the surface winds as reported; e.g., for winds reported as 20 knots gusting to 38 knots, enter as “20 G 38,” (gust spread of 18).

Block 8. Indicate significant weather present at the time of the accident. A maximum of three conditions may be checked.

Block 9. Indicate other environmental factors that caused, contributed to, or may have influenced human performance that caused or contributed to the accident.

Block 10. If aircraft icing was present during the accident sequence, place an X in the “yes” block and indicate those portions of the aircraft affected by placing an X in the appropriate severity column.

Block 11. To be completed for night accidents only. If item a is checked “No,” no other entries are required.

Block 12. If turbulence existed, check the appropriate block.

C—Continuous (More than two-thirds of the time.)

I—Intermittent (One-third to two-thirds of the time.)

O—Occasional. (Less than one-third of the time.)

If no turbulence existed, check “None.”

Block 13. Check whether forecast was correct or incorrect. If not known, check “unknown” box.

Block 14. Discuss other environmental factors not covered by this form or items that need further explanation.

Block 15. Enter the case number shown on the DA Form 2397-1-R.

REQUIREMENTS CONTROL SYMBOL
CSOCS-309

[illegible]

DA Form 2397-12-R; Fire Data

Completion instructions for DA Form 2397-12-R, Fire Data

Block 1. Check the appropriate box to indicate when the fire started.

Block 2. Enter a “1” in the appropriate block for the initial indication of fire. Enter “2, 3, etc.”, for additional indications.

Block 3. Enter a “1” in the definite or suspected block to show the first location of the fire. When the principal location of the fire is different, enter a “2” to show the principal location. For example, ignition might occur at a broken fuel line to the engine. The fire might then spread to a ruptured fuel cell, causing it to become the principal location of the fire.

Block 4. Check the appropriate box to show the ignition source. If a definite source is not known, investigators are urged to indicate a suspected source. In all cases where a suspected source is indicated, explain in block 10.

Block 5. Check the material(s) that were the principal source of the fire.

Block 6. Check the appropriate box(es) to report on the adequacy of ground and aircraft fire extinguishing systems. Ground extinguisher systems include fire trucks, ramp extinguisher, etc. Aircraft fire extinguishing systems include those that are integrally installed (INST) in the aircraft; e.g., engine fire extinguishing systems; e.g., 5-lb portable bottle (PORT). Explain in block 10 all malfunctions and failures of the extinguishers/systems. Include nomenclature, NSN, size of extinguisher, type of agent, reason for failure and EIR number.

Block 7. Check the appropriate box to indicate if a fire/smoke detection system was installed and its function. If “undetermined” is checked, explain in block 10.

Block 8. Enter effectiveness of the engine, fuel, and/or electrical shutoff system(s).

Block 9a. Check percentage of damage caused by fire. In cases where an inflight fire results in the crew ejecting from the aircraft, only the fire damage prior to impact should be recorded. The objective of this item is to distinguish between fire damage and impact damage.

Block 9b. The purpose of this item is to determine the occupant's exposure to fire during the emergency evacuation. Complete the items in all cases, even those in which the occupants were trapped or incapacitated and thus unable to escape. Since it is unlikely that the dimension of the fire will be uniform around the aircraft, select the avenue of greatest distance an occupant will have to traverse to escape.

Block 9c. In addition to consumption of available oxygen, aircraft fires generate toxic gases such as carbon monoxide, acrolein, phosgene, etc. These toxic gases may seriously affect aircraft occupants in two ways: severe contamination, irritation of the mucous membrane of the eyes and respiratory passages, and systemic absorption in sufficient quantity to produce varying degrees of incapacitation. If toxic products are suspected to have affected occupants, record on a DA Form 2397–9–R for the affected occupant.

Block 9d. Complete the item even though the equipment was not at the scene of the fire. The objective of this item is to determine the distribution of available firefighting equipment relative to the location of fire accidents.

Block 9e. If the impact–activated fire extinguishing system was installed on the accident aircraft, check the appropriate block to indicate its function. If not installed check “NA.”

Block 10. Enter explanations or clarifications of other items on the form and continue remarks on letter–size paper.

Block 11. Enter the case number shown on DA Form 2397–1–R.

Block 12. Use only in cases involving more than one aircraft and make entry only on the form applying to the other aircraft; i.e., other than the one identified in block 11c.

Appendix T

DA Form 7306-R (Telephonic Notification of Ground Accident)

Completion instructions for DA Form 7306-R, Telephonic Notification of Ground Accident

Block 1. Enter the name, primary duty, and telephone number of the point of contact for this accident.

Block 2. Check the appropriate box that indicates the accidents classification.

Block 3. Enter the date of the accident using *YYDDMM* format. Enter the local time of the accident using the 24 hour clock.

Block 4. Check the appropriate box indicating the time of day. Dawn is that period of time between beginning of morning nautical twilight (BMNT) and official sunrise. Dusk is that period of time between sunset and end of evening nautical twilight (EENT).

Block 5. Check the appropriate box indicating if the individual(s) involved in the accident was / were on or off duty.

Block 6. Enter the type of equipment, if any, involved in the accident.

Block 7. Enter the name and address of the unit of the individual(s) involved or the unit owning the equipment in block 6.

Block 8. Enter the name of the major command (MACOM) associated with the unit in block 7.

Block 9. Check the appropriate box to indicate whether night vision device(s) / system (NVD) was in use at the time of the accident.

Block 10. Enter the exact location of the accident. You may use latitude / longitude or any other method to exactly identify the accident location.

Block 11. Check the appropriate block indicating whether the accident occurred on or off post.

Block 12. Enter the name of the closest military installation to the accident site.

Block 13. Check the appropriate box indicating if this accident involves material that is explosive, hazardous, or sensitive.

Block 14. If “Yes” was checked in block 13, check the appropriate box indicating if the material was secure.

Block 15. Check the appropriate box indicating if the accident site was secure IAW AR 385-40.

Block 16. Check the appropriate box indicating if the accident site was disturbed.

Block 17. If “Yes” was checked in block 16, check the appropriate box indicating if photos were taken prior to the site being disturbed.

Block 18. Enter the weather conditions at the time of the accident.

Block 19. Enter the number of personnel involved in the accident. Identify individuals by position and indicate highest ranking individual.

Block 20. Enter the number of injuries by type as appropriate.

Block 21. Enter a brief synopsis of events from the initial onset of the emergency until the aircraft is at rest, to include injuries resulting from the accident.

Block 22. Check the appropriate box indicating if the news media is aware of the accident.

Block 23. Enter the name and ICAO identifier of the nearest commercial airport that is large enough to accommodate international flights (must be capable of handling a C-12).

Block 24. USASC use only: Check the appropriate box indicating who will perform the accident investigation.

WORKSHEET FOR TELEPHONIC NOTIFICATION OF GROUND ACCIDENT

For use of this form, see AR 385-40; the proponent agency is OCSA

Immediately notify USASC telephonically of all Class A and B accidents IAW AR 385-40, chapter 3. Phone numbers are:
Commercial (205)255-2660/4273/3410 or DSN 558-2660/4273/3410.

| | | | | | | | |
|---|--|---|--|---|---|---|--|
| SHADED BLOCKS ARE FOR USASC USE ONLY | | A. ASMIS CASE NUMBER | | B. TIME & DATE OPS RECEIVED REPORT | | | |
| | | | | a. Year | b. Month | c. Day | d. Time (local) |
| 1. POINT OF CONTACT FOR ACCIDENT INFORMATION | | a. Name | | | | | |
| b. Duty <input type="checkbox"/> Commander <input type="checkbox"/> Safety Officer <input type="checkbox"/> Other (Specify) | | c. Phone Number DSN: Commercial: | | | | | |
| 2. ACCIDENT CLASSIFICATION <input type="checkbox"/> A <input type="checkbox"/> B | 3. TIME & DATE OF ACCIDENT a. Year b. Month c. Day d. Time (local) | | | 4. PERIOD OF DAY <input type="checkbox"/> Day <input type="checkbox"/> Night | 5. ON/OFF DUTY <input type="checkbox"/> On-Duty <input type="checkbox"/> Off-Duty | | 6. TYPE OF EQUIPMENT /MATERIEL INVOLVED |
| 7. UNIT | | | | 8. MACOM | | 9. NIGHT VISION DEVICE IN USE <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| 10. EXACT ACCIDENT LOCATION | | | | | | | |
| 11. ON-POST/OFF-POST? <input type="checkbox"/> On-Post <input type="checkbox"/> Off-Post | | 12. MILITARY INSTALLATION NEAREST ACCIDENT SITE | | | | | |
| CHECK "YES" or "NO" FOR QUESTIONS 13 THROUGH 17 | | | | Yes | No | 19. PERSONNEL INVOLVED | |
| 13. EXPLOSIVE/HAZARDOUS/SENSITIVE MATERIALS INVOLVED? | | | | | | a. No. of Personnel by Rank/Category _____ Officer _____ WO _____ Enlisted _____ Army Civilian | |
| 14. IF YES TO #13, ARE THEY SECURE? | | | | | | b. Total No. of Personnel | |
| 15. ACCIDENT SITE SECURED IAW DA PAM 385-40? | | | | | | c. Highest Rank | |
| 16. HAS ACCIDENT SCENE BEEN DISTURBED? | | | | | | 20. INJURIES (Enter # of each) _____ Fatalities _____ Non-Fatal Injuries | |
| 17. IF YES TO #16, WERE PHOTOS, ETC. MADE BEFORE DISTURBING THE SCENE? | | | | | | As soon as possible, the following additional information is required on all injured personnel; name, personnel classification, degree of injury, and SSAN. | |
| 18. WEATHER CONDITIONS | | | | | | | |
| 21. ACCIDENT SYNOPSIS (What happened) | | | | | | | |
| 22. NEWS MEDIA AWARE OF ACCIDENT <input type="checkbox"/> Yes <input type="checkbox"/> No | | 23. NEAREST AIRFIELD | | a. Nearest that can handle C-12 (4,000 ft. min.) | | | |
| | | b. Nearest commercial airfield | | | | | |
| 24. WHO WILL INVESTIGATE? | | a. Installation Level Accident Investigaion (IAI) Board Appointed <input type="checkbox"/> Yes <input type="checkbox"/> No | | b. CAI Team Dispatched <input type="checkbox"/> Yes <input type="checkbox"/> No Team: | | | |

DA Form 285-AB-R Abbreviated Ground Accident Report

Type or print all entries. Continue on blank sheets of paper if necessary, indicating the date of accident, the unit/activity accountable for the accident, and the blocks being continued.

For accidents involving more than one person, the entire form will be completed on the most responsible reportable person. An additional AGAR with Blocks 1, 5, and 11 through 37 will be completed for each additional person involved in the accident. "Involved" means any person who was injured or who took actions or made decision that caused or contributed to the accident. Witness and uninjured passenger are not considered involved unless their actions caused and/or contributed to the accident.

The following instructions for block completion are keyed to block numbers.

Block 1. Enter the year, month, and day of the accident. Also enter the local time of the accident.

Block 2. Check the block that best describes when the accident occurred (day or night). Day is from first light to full night (dark). Night is from full dark (full night) to first light.

Block 3. Enter your estimate of the accident's classification A, B, C, or D

Accident/Incident Classification Criteria

Class A Accident. The resulting total cost of reportable damage is \$1,000,000 or more, an Army Aircraft, missile, or spacecraft is destroyed, or an injury and/or occupational illness results in a fatality or permanent total disability.

Class B Accident. The resulting total cost or reportable property damage is \$200,000 or more but less than \$1,000,000, an injury and/or occupational illness results in permanent partial disability, or three or more personnel are inpatient hospitalized.

Class C Accident. The resulting total cost of property damage is \$20,000 or more but less than \$200,000, a nonfatal injury causes any loss of time from work beyond the day or shift on which it occurred, or a nonfatal illness or disability causes loss of time from work or disability at any time (lost-time case).

Class D Accident. The resulting total cost of property damage is \$2,000 or more but less than \$20,000 (injuries that does not meet the criteria are not required to be reported to USASC).

Block 4. Check the appropriate box. See AR 385-40's glossary for the definition of a combat accident.

Block 5. Enter the unit or activity accountable for this accident. Also, enter the abbreviation of the unit's branch (branch of the Army with which unit is affiliated) from the list below. (**NOTE:** If accident was caused solely by material failure or environmental factors, enter the unit or activity experiencing the accident).

| Code | Description |
|------|--------------------------------|
| AG | Adjutant General Corps |
| AD | Air Defense Artillery |
| AR | Armor |
| SP | Army Medical Specialist Corps |
| AN | Army Nurse Corps |
| AV | Aviation |
| CH | Chaplain |
| CM | Chemical |
| DC | Dental Corps |
| EN | Engineers |
| FA | Field Artillery |
| FI | Finance Corps |
| IN | Infantry |
| JA | Judge Advocate General's Corps |
| MC | Medical Corps |
| MS | Medical Service Corps |
| MI | Military Intelligence |
| MP | Military Police |
| OR | Ordnance |
| PA | Public Affairs |
| QM | Quartermaster Corps |
| SC | Signal Corps |
| SF | Special Forces |
| TC | Transportation Corps |
| VC | Veterinary Corps |

Block 6a. Enter the exact location of the accident (e.g. building number, street name, and number, distance from nearest landmark, etc.).

Block 6b. Enter one code from the list below for the primary function of the accident location.

Maintenance/fabrication facility

| Code | Description |
|------|--|
| A1 | Vehicle facility (motorpool, maintenance shop) |
| A2 | Aircraft facility (hangar) |
| A3 | Vessel facility (boat overhaul/rebuild facility) |
| A4 | Engineer facility (carpentry/electrical plumbing shop) |
| A5 | Other maintenance facility |

Travel ways

| Code | Description |
|------|--|
| B1 | Pedestrian way (sidewalk) |
| B2 | Vehicle trail (tank trail) |
| B3 | Roadway (street, curb, shoulder, driveway) |
| B4 | Parking lot |
| B5 | Aircraft way (flight line, runway) |

| | |
|----|----------|
| B6 | Railroad |
|----|----------|

Other operation facilities/areas

| Code | Description |
|------|-----------------------------------|
| C1 | Office building |
| C2 | Communications facility |
| C3 | Construction site |
| C4 | Security/law-enforcement facility |
| C5 | Bridge |
| C6 | Dam |
| C7 | Navigation locks |
| C8 | Barge |
| C9 | Dredge |
| C10 | Floating plant |
| C11 | Vessel (not elsewhere coded) |
| C12 | ARNG/reserve armory |

Training areas

| Code | Description |
|------|---|
| D1 | Range-small arms/ individual weapons |
| D2 | Range-crew-served weapons |
| D3 | Range-Aerial firing / bombing |
| D4 | Range-infiltration course |
| D5 | Dedicated non-firing training area (obstacle/confidence course, parachute drop zone, landing zone, stage field) |
| D6 | Temporary training area (unit assembly area, bivouac area) |
| D7 | Range-EOD |

Service Facilities

| | Description |
|-----|---|
| E1 | Library |
| E2 | Chapel/church |
| E3 | Child-care center |
| E4 | Post office |
| E5 | Laboratory |
| E6 | Medical care facility |
| E7 | Fire station |
| E8 | Commissary |
| E9 | Post Exchange |
| E10 | Dining Facilities |
| E11 | Post exchange, service station, gas station |
| E12 | Museum |
| E13 | Animal-care facility |
| E14 | Refuse disposal area |
| E15 | Laundry/dry cleaning facility |

Terrain and water locations

| | Description |
|----|---|
| F1 | Sloped terrain (ditch, mountain) |
| F2 | Wooded terrain (forest, swamp, marsh) |
| F3 | Open terrain (field, desert) |
| F4 | Moving bodies of water (creek, stream, river) |
| F5 | Standing bodies of water (pond, lake, ocean) |
| F6 | Lake shore/beach Storage facilities |

Storage facilities

| Code | Description |
|------|---|
| G1 | Storage building |
| G2 | Outside storage area (POL dump, property disposal area) |
| | |
| | |

Industrial plants and factories

| Code | |
|------|---|
| H1 | Heating plant |
| H2 | Printing plant |
| H3 | Electrical generating plant (includes power substation) |
| H4 | Ammunition/weapons manufacturing plant |
| H5 | Other industrial plants and factories |

Recreational / entertainment facilities

| Code | |
|------|--|
| I1 | Indoor facilities (bowling alley, gym, movie theater, swimming pool) |
| I2 | Outdoor facilities (playing fields, golf course, swimming pool) |

Housing Facilities

| Code | Description |
|------|--|
| J1 | Family housing |
| J2 | Individual housing (BOQ, barracks rooms) |

Freight and passenger terminals

| K1 | Airports / Airfield (includes control tower) |
|----|--|
| K2 | Rail station / yard |
| K3 | Port/dock / wharf |
| K4 | Vehicle terminal (bus station, truck terminal) |

School facilities

| L1 | Kindergarten through grade 12 |
|----|---|
| L2 | Army-operated technical/ occupational training facilities/classrooms (aviation/maintenance school) |
| L3 | Non-Army-operated technical/operational training facilities/classrooms (university/college classes) |

Hobby shop

| Code | Description |
|------|------------------------|
| M1 | Auto hobby shop |
| M2 | Woodworking hobby shop |
| M3 | Other hobby shop |

Block 6c. Enter the name of the state or country in which the accident occurred.

Block 6d. Indicate whether the accident occurred on-or-off-post; if on-post, enter the name of the installation/activity.

Block 7a. Check yes if explosives, ammunition, or pyrotechnics were PRESENT.

Block 7b. Check yes if explosives, ammunition or pyrotechnics were INVOLVED.

Block 8a. Briefly describe the mission the individual or unit was conducting at the time of the accident. If off duty, so state.

Block 8b. Was the task a METL task? Check the appropriate box.

Block 9. "Involved" means vehicle/equipment/material/property that is damaged, whose use or misuse materiel failure/malfunction caused or contributed to the accident. Include Army and non-Army equipment/ material. Use one line for each piece of equipment or item

and enter the requested information. Continue on blank paper if necessary.

Block 9a. Enter the name of the equipment /material involved.

Block 9b. Enter the equipment model.

Block 9c. Indicate who owns the vehicle/equipment/material (e.g., DOD, DA, and unit person).

Block 9d. Enter your estimate of the damage cost for the piece of equipment listed in block9a.

Block 9e. From the list below, select the type(s) of collision in which this property material was involved. More than one collision type might be appropriate for the property/material. If so, enter, up to three in the space provided. If "Other" is selected, specify the type of collision in the space provided. If no collision was involved, leave blank.

| Code | Description |
|------|---|
| 1 | Going forward and collided with moving vehicle |
| 2 | Going forward and collided with parked vehicle |
| 3 | Collision while backing |
| 4 | Collision with pedestrian |
| 5 | Collision with object other than vehicle / pedestrian |
| 6 | Overtured |
| 7 | Ran off road |
| 8 | Jackknifed |
| 9 | Going forward and rear-ended moving vehicle |
| 10 | Going forward and rear-ended stopped vehicle |
| 11 | Collision while turning |
| 12 | Other (specify) |

NOTE: If the item in block 9a experienced a material failure or malfunction that caused or contributed to the accident, complete blocks 9f-9k and block 10. If not, skip to block 11.

Block 9f. Enter the code from the list below that indicates how the component or part failed or malfunctioned (mode or failure).

Explanation of these codes are contained appendix B of DA Pam 385-40.

| Code | Description |
|------|---|
| M01 | Overheated/burned/ melted. (key words: blister, boil, carbonize, char, flame, fuse, and glaze). |
| M02 | Froze (temperature). (Key words: congeal, solidify) |
| M03 | Obstructed/pinched/clogged. (Key words: block, crimp, restrict) |
| M04 | Vibrated. (Key words: oscillate, shake) |
| M05 | Rubbed/worn/frayed. (Key words: abrade, chafe, fret, groove, score, scrape) |
| M06 | Corroded/rusted/pitted. (Key words: erode, oxidize) |
| M07 | Over-pressured/burst. (Key words: balloon, bulge, explode, rupture, swell) |
| M08 | Pulled/stretched. (Key word elongate) |
| M09 | Twisted/torque. (Key words: turn) |
| M10 | Compressed/hit/ punctured. (Key words: chip, collapse, crush, dent, nick, pinch, press) |
| M11 | Bent/warped. (Key words: bow, buckle) |

| | |
|-----|--|
| M12 | Sheared/cut. (Key word: chop, sever) |
| M13 | Decayed/decompose. (Key words: mildew, rot, spoiled) |
| M14 | Electric current action. (Key words: short arc, fusing, grounding, amperage, voltage, surge) |
| M97 | Insufficient data to determine mode of failure |

Block 10. Material failures/malfunctions can be caused by shortcomings of leaders, standards/procedures, or support:

Leader failure: Standards procedures are know but are not enforced.

Standards failure: Standards/procedures are not clear/practical or do not exist (e.g., AR, TM, FM, SOP, etc.).

Support failure: Shortcomings in type capability, amount, or condition of equipment, supplies, services, or facilities (equipment/material not provided or improperly designed, inadequate manufacture or maintenance, or inadequate facilities/services; shortcomings in personnel by quantity of qualifications.

Block 10a. Determine the underlying reason (root cause) the material failed or malfunction and check the block accordingly (see appendix B of DA Pam 385-40 for an explanation of code terms)

Block 10b. Describe how the material failed or malfunctioned and explain why (explain mode of failure from block 9f and root cause from block 10a).

Block 11. Enter the last name, first name, and middle initial of involved person. Also enter the UIC if it is different from that entered in block 5a.

Block 12. Enter the SSN of the individual listed in block 11.

Block 13. Enter the code from the list below for the classification (at the time of the accident) of the person listed in block 11. Enter only ONE code.

| Code | Description |
|------|----------------------|
| A | Active Army |
| B | Army civilian |
| C | Army contractor |
| D | Non-appropriate fund |
| E | Other U.S. military |
| F | ROTC |
| G | Dependent |
| H | NGB technician |
| I | NGB IDT |
| J | NGB AT |
| K | NGB ADSW |
| L | NGB AGR |
| M | NGB ADT |
| N | USAR IDT |
| O | USAR AT |

| | |
|---|-------------------------------------|
| P | USAR ADT |
| Q | USAR FTM |
| R | Foreign Nat'l Direct Hire |
| S | Foreign Nat'l Indirect Hire |
| T | Foreign Nat'l KATUSA |
| U | Foreign Nat'l attached to U.S. Army |
| V | Public |
| W | Not Reported |

Block 14. Enter the MOS or job series of the individual listed in block 11.

Block 15. Check the appropriate box to reflect the duty status at the time of the accident of the individual listed in block 11.

Block 16. Enter the age of the individual listed in block 11.

Block 17. Enter "M" for male or "F" for female.

Block 18. Enter the rank/pay grade for the individual listed in block 11 (e.g., E5, 03, GS-11, WG-8),

Block 19. Check the appropriate box (for government personnel only) to indicate the military flight status of the individual listed in block 11.

Block 20a. Enter the code that indicated the severity of the injury to the individual. If more than one applies, enter the most severe. See AR 385-40 for definition of the following.

| Code | Description |
|------|------------------------------|
| a | Fatal |
| b | Permanent total disability |
| c | Permanent partial disability |
| d | Days away from work |
| e | Restricted work activity |
| f | First Aid only |
| g | No Injury |

Block 20b. Enter the code that best described this person's most serious injury type.

| Code | Description |
|------|----------------------------|
| NA | None/non- applicable |
| A | Burns (chemical) |
| B | Burns (thermal) |
| C | Amputation |
| D | Decompression sickness |
| E | Asphyxiation (suffocation) |
| F | Fractures |
| G | Dislocation |
| H | Abrasions |
| I | Concussion |
| J | Sprains/strain |
| K | Cuts/lacerations |
| L | Contusion |
| M | Puncture wound |
| N | Hernia, rupture |
| O | Frostbite |
| P | Heatstroke |

| | |
|---|----------------------|
| Q | Heat exhaustion |
| R | Noise injury/illness |
| S | Other (specify) |

Block 20c. Enter the code that best described the most serious injured part of this person's body. (Body part entered here should be one with the injury indicated in previous block.)

| Code | Description |
|------|--------------------------------|
| NA | None/non-applicable |
| A | Body (general, cannot specify) |
| B | Head |
| C | Forehead |
| D | Eyes |
| E | Nose |
| F | Jaw |
| G | Neck |
| H | Trunk |
| I | Chest |
| J | Heart |
| K | Back |
| L | Shoulder |
| M | Arms |
| N | Wrist |
| O | Hand |
| P | Fingers |
| Q | Leg |
| R | Knee |
| S | Ankle |
| T | Foot |
| U | Toes |
| V | Other |

Block 20d. Enter the code that best described the cause of the most serious injury to this individual (the event that resulted in the injury/illness).

| Code | Description |
|------|-------------------------|
| NA | None/non-applicable |
| A | Struck against |
| B | Struck by |
| C | Fell from elevation |
| D | Fell from same level |
| E | Caught in/under/between |
| F | Rubbed/abraded |
| G | Bodily reaction |
| H | Overexertion |
| I | Exposure |
| J | External contact |
| K | Ingested |
| L | Inhaled |
| M | Thrown from |

Block 21. Enter the estimated or actual total number of days this individual will be hospitalized (inpatient/admitted) receiving treatment. Days hospitalized for "observation only" are not included.

Block 22a. Enter the estimated or actual number of days this individual; will be away from work (totally unable to perform any work, on bed rest/quarters). Workdays lost does not include days hospitalized or the day of injury.

Block 22b. Enter the estimated or actual number of workdays the individual will not be able to perform all of his or her regular duties AFTER going back to work (light duty/profile).

Block 23. Enter the code from the list below that best described the individual's activity at the time of the accident. Enter only one code. If the person was engaged in more that one activity at the time of the accident, check the most relevant to the cause of the accident. See DA Pam 385-40, appendix I for explanation of activity codes.

| Code | Description |
|------|-----------------------------------|
| A | Soldering |
| B | Combat soldiering |
| C | Physical training |
| D | Weapons handling |
| E | Engineering or construction |
| F | Communication |
| G | Security/law enforcement |
| H | Fire-fighting |
| I | Patient care |
| J | Test/study/experiments |
| K | Educational |
| L | Information and art |
| M | Food and drug inspection |
| N | Laundry/dry cleaning |
| O | Pest/plant control |
| P | Operating vehicle/vessel |
| Q | Handling animal |
| R | Maintenance/repair/ servicing |
| S | Fabricating |
| T | Handling material/ passengers |
| U | Janitorial/housekeeping, etc. |
| V | Food/drink/ preparation |
| W | Supervisory |
| X | Office |
| Y | Counseling/advisory |
| Z | Sports |
| AA | Hobbies |
| BB | Passenger |
| CC | Human movemen |
| DD | Horseplay |
| EE | By-standing/spectating |
| FF | Personal hygiene/ eating/sleeping |
| GG | Parachuting |

Block 24. Enter a concise description of the individual activity/task at the time of the accident.

Block 25a. Check YES or NO to indicate whether any personal protective clothing or equipment was required for the activity/task

being performed by this individual. If YES, complete blocks 25b-d. If NO, skip to block 26.

Block 25b. Enter the code for the type of equipment that was required.

| Code | Description |
|------|-----------------|
| A | Seat belt |
| B | Helmet |
| C | Goggles/glasses |
| D | Gloves |
| E | Earplugs |
| F | Other (specify) |

Blocks 25c & d. If protective clothing and equipment was required, determine if it was required, determine if it was available and used, available but not used, or not available. Then, enter YES or NO in the appropriate blocks to indicate the items' availability (block 25c) and use or nonuse (block 25d).

Block 26. Check the appropriate box to indicate whether or not alcohol/drugs caused or contributed to the accident.

Block 27. Enter the item number (e.g., #1, #2) from block 9a that indicates which piece of equipment this individual was associated with.

Block 28. If this individual was operating a vehicle or equipment (at the time of the accident) that required a license to operate, indicate if the individual had such a license (up-to-date). If no license was required or no equipment was being operated, skip to block 29.

Block 29. Enter the number of continuous hours (without sleep) this individual was on duty before the accident.

Block 30. Enter the number of hours sleep (cumulative) this individual has in the past 24 hours.

Block 31. Indicate whether the activity listed in blocks 23 and 24 was part of tactical training (training in field environment that used or develops combat or combat support skills (see note below).

NOTE: For this report, the following definitions apply:

- ◆ **Tactical training.** Training (in a field environment) that uses or develops combat or combat support skills.
- ◆ **Field exercise and tactical training.** Begins when the individual reports to his or her primary duty location for movement to the field site and ends when he or she arrived back at the primary duty location from the field.

Block 32. If the individual was participating in any type of training, enter the code for the type of training facility being used (see FM 25-2 for definitions). (If not applicable, leave blank).

| Code | Description |
|------|-----------------------------------|
| A | Garrison |
| B | Local training area |
| C | Major training area |
| D | NTC |
| E | JRTC |
| F | CMTC |
| G | Standard range facility/live fire |
| H | Other (specify) |

Block 33. For the activity specified in blocks in 23 and 24, enter the number of months since last time the individual received training before the accident.

Block 34. Check the appropriate box to indicate whether the individual was on command designated field-training exercise, if it has a name (e.g., Team Spirit, REFORGER, and Gallant Eagle). Check NO if the individual was not participating in a field training exercise.

Block 35. Indicate if night vision systems (devices) were being used by this individual at the time of the accident (e.g., night vision goggles, ANPVS-5-A). If used, specify the type. If they caused or contributed to the accident, explain in block 39.

Block 36a. In your opinion, did this individual make a mistake that caused and/or contributed to the accident? If the answer is YES complete block 36b & c and block 37. If NO, skip to block 38.

Block 36b. Enter the code from the list below that best indicated the type of mistake made by this individual. See DA Pam 385-40 for explanation and examples of the mistakes/error codes.

General mistakes/errors

| Code | Description |
|------|---|
| 01 | Inadequate planning |
| 02 | Failed to lock, block, or secure; e.g., load. |
| 03 | Inadequate inspection or check of vehicle or equipment. |
| 04 | Failed to use required safety equipment, device, guard, sign, or signal. |
| 05 | Operating while fatigued when not necessary or directed. |
| 06 | Improper use of equipment. |
| 07 | Improper lifting |
| 08 | Failed to take appropriate precautions for adverse environmental conditions (rain, haze, fog, snow, ice, and reduced visibility). |
| 09 | Improper body position. |
| 10 | Improperly walked, ran, or climbed. |
| 11 | Failed to stay alert or attentive to what was happening (situational awareness of environment, conditions, and operations). |
| 12 | Failed to ensure adequate clearance/space (enough room) for operation. |
| 13 | Misjudge clearance (improperly estimated or evaluated). |
| 14 | Improper weapons handling |
| 15 | Improper handling of pyrotechnics or explosives |
| 16 | Incorrectly pulled or pushed equipment or material. |

| | |
|----|---|
| 17 | Failed to firmly grip or hold equipment or material |
| 18 | Inadequate crew coordination or communication. |

Vehicle/equipment specific

| Code | Description |
|------|---|
| 40 | Excessive speed |
| 41 | Improper passing. |
| 42 | Improper turning. |
| 43 | Failed to yield right-of-way (other than while turning). |
| 44 | Failed to stop at controlled intersection. |
| 45 | Improperly stopped or parked. |
| 46 | Improper backing. |
| 47 | Failed to use ground guide when required. |
| 48 | Ground guide used improperly or incorrect position, signal, or procedure. |
| 49 | Following too close for environmental conditions or vehicle speed/design. |
| 50 | Driving in wrong lane. |
| 51 | Improper lane change. |
| 52 | Improper braking. |
| 53 | Improperly shifted gears on vehicle or equipment. |
| 54 | Abrupt control or steering response (except while turning). |
| 55 | Improperly mounted or dismounted vehicle or equipment. |
| 56 | Operated vehicle or equipment with known malfunction or unsafe mechanical conditions. |

Supervisor error / mistakes

| Code | Description |
|------|--|
| 75 | Improper personnel selection or assignment. |
| 76 | Knowingly allowed equipment operator to violate procedures. |
| 77 | Failed to ensure proper positioning of personnel before vehicle equipment operation. |
| 78 | Failed to inform or brief personnel adequately for mission accomplishment. |
| 97 | Insufficient information reported to identify mistake or error. |

Block 36c. Describe the mistake and how it caused or contributed to the accident. Be specific.

Block 37. Mistake can be caused by shortcomings of leaders, training, standards/procedures, support, or the individual. Specific causes include:

- ◆ **Leader failure:** Standards or procedures are known but are not enforced.
- ◆ **Training failure:** Standards exist but school, unit, or on the job training or individual experience is insufficient in content or amount.
- ◆ **Standards failure:** Standards or procedures are not clear or practical or do not exist; e.g., AR, TM, FM, SOP, etc.
- ◆ **Support failure:** Shortcomings in type, capability, amount, or condition of equipment, supplies, service, or facilities (equipment or material not provided or improperly designed, inadequate manufacture or maintenance, or inadequate facilities or services); personnel by quantity or qualifications.
- ◆ **Individual failure:** Standards are known but are not followed.

Block 37a. Identify why the mistake was made (specific root cause). See appendix B of DA Pam 385-40 for definitions and a list of questions to help determine the readiness shortcomings or root cause responsible for the mistake or error.

Block 37b. Describe the root cause and tell how it caused the mistake.

Block 38. Enter the codes (no more than three) from the list below to indicate the conditions present at the time of the accident. Also indicate whether the condition caused or contributed to the accident by checking the caused/contributed block and, if YES, explaining in block 39.

| Code | Description |
|------|--|
| A | Clear/dry |
| B | Bright/glare |
| C | Dark/dim |
| D | Fog/condensation/frost |
| E | Mist/rain/sleet/hail |
| F | Snow/Ice |
| G | Dust, fumes, gases, smoke, vapors |
| H | Noise, bang, static |
| I | Temperature/humidity (cold/heat) |
| J | Storm, hurricane, tornado |
| K | Wind gust/turbulence |
| L | Vibrate/shimmy/sway shake |
| M | Radiation/Laser/sunlight |
| N | Holes/rocky/ rough/ rutted/ uneven |
| O | Inclined/steep |
| P | Slippery (not due to precipitation) |
| Q | Air pressure (bends, hypoxia, decompression, altitude) |
| R | Lightning/static electricity/ grounding |
| S | Electromagnetic radiation |
| T | Other (specify) |

Block 39. Provide a brief synopsis of the accident. Explain the sequence of events. Tell how and why the accident happened.

Block 40. Briefly describe all actions taken, planned, or recommended to eliminate, or at least reduce, the root cause(s) of this accident and prevent similar accidents from happening (see appendix B, DA Pam 385-40 for example);

Block 41. Individual who can answer questions about this accident.

| | | | | | | | | | | | | | | | | | |
|---|----------------------|--|----------------------------|--|---|--|------------------------------|--|-----------|--|---|---|----------------------|---|------------|----|--|
| U.S. ARMY ABBREVIATED GROUND ACCIDENT REPORT (AGAR) For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA | | | | | | | | | | | | | | REQUIREMENT CONTROL SYMBOL CSOCS-308 | | | |
| 1. TIME & DATE OF ACCIDENT | | a. Yr | b. Mth | c. Day | d. Time | 2. PERIOD OF DAY | | Day | Night | 3. ACDT CLASS | | 4. ACDT OCCURRED DURING: | | Combat | Non-Combat | | |
| 5. UNIT IDENTIFICATION | | a. UIC (6-digit Code) | | | | b. Name of Unit | | | | c. Unit's Branch | | | | d. MACOM | | | |
| 6. LOCATION OF ACCIDENT | | a. Exact Location (Detailed enough to locate site) | | | | | | | | | | b. Type Location | | | | | |
| c. State/County | | d. | Off Post | On Post Name: | | | | 7. EXPLOSIVES/AMMO | | a. Present | Yes | No | b. Involved | Yes | No | | |
| 8. MISSION | | a. Briefly describe the mission | | | | | | | | | | b. METL Task? | | Yes | No | | |
| 9. VEHICLE/EQUIPMENT/MATERIEL INVOLVED | | | | | | | | | | Materiel Failure/Malfunction Information | | | | | | | |
| a. Type of Item (Nomenclature) | | b. Model # | c. Ownership | d. Estimated Cost of Damage | e. Vehicle Collision | f. Failure Mode | g. Part Nomenclature | | h. Part # | i. Part NSN | j. Part Manufacturer Code | | k. EIR/QDR Submitted | | | | |
| #1 | | | | | | | | | | | | | Yes | No | | | |
| #2 | | | | | | | | | | | | | Yes | No | | | |
| 10. WHY DID THE MATERIEL FAIL/MALFUNCTION? (Check the root cause(s) in Block a. In Block b, explain how the root cause(s) led to the materiel failure/malfunction.) | | | | | | | | | | | | | | b. Describe how the materiel failed/malfunctioned and explain why (root cause) | | | |
| a. | | LEADER (Not ready, willing to enforce) | | STDs/PROCEDURES (Not clear, Not practical) | | SUPPORT (Shortcomings in type, capability, amount or condition of equip/supplies/services/facilities) | | | | | | | | | | | |
| | | Direct Supervision | | AR | SOP | Equip/Materiel improperly designed | | Inadequate Manufacture | | | | | | | | | |
| | | Unit Command Supervision | | TM | Other | Equip/Materiel not provided | | Inadequate Maintenance | | | | | | | | | |
| | | Higher Command Supervision | | FM | None exists | Inadequate Facilities/Services | | Other | | | | | | | | | |
| 11. NAME (Last, First, MI) (Include Address & UIC if different than Blks 5a & b.) | | | | | 12. SOCIAL SECURITY # | | 13. PERSONNEL CLASSIFICATION | | 14. MOS | | 15. DUTY STATUS | | On-duty | Off-duty | | | |
| | | | | | | | 16. AGE | | 17. SEX | | 18. PAY GRADE | | 19. FLIGHT STATUS | | Yes | No | |
| | | | | | 20. MOST SEVERE INJURY (See instructions) | | a. Degree | | b. Type | | c. Body Part | | d. Cause | | | | |
| 21. DAYS HOSPITALIZED | | ACTIVITY OF INDIVIDUAL Provide code (from list in instructions) and describe in space below. | | | | | | | | | | | | | | | |
| | | 23. CODE | | 24. SPECIFIC DESCRIPTION OF ACTIVITY/TASK | | | | | | | | | | | | | |
| 22. WORKDAYS | | | | | | | | | | | | | | | | | |
| a. Lost | | | | | | | | | | | | | | | | | |
| b. Restricted | | | | | | | | | | | | | | | | | |
| 25. PERSONAL PROTECTIVE EQUIP | | | | 26. ALCOHOL/DRUGS CAUSE/CONT | | | | Yes | No | Unk | 27. EQUIP THIS PERSON WAS ASSOCIATED WITH? (Enter item No. from Blk 9a) | | | | | | |
| a. Required | b. Type of equip | c. Available | d. Used | 28. LICENSED TO OPERATE EQUIP | | 29. HRS ON DUTY | 30. HRS SLEEP | 31. TACTICAL TRAINING | | 32. TYPE TRAINING FACILITY | 33. LAST TRAINING | 34. FIELD TRAINING EXERCISE | | 35. NIGHT VISION SYSTEM USED | | | |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | #1 _____ #2 _____ | #1 <u>No</u> #2 <u>No</u> | #1 <u>N</u> #2 <u>N</u> | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | | <input type="checkbox"/> Yes If Yes, provide name: <input type="checkbox"/> No | | <input type="checkbox"/> Yes If Yes, provide name: <input type="checkbox"/> No | | | |
| 36. DID INDIVIDUAL MAKE A MISTAKE THAT CAUSED/CONTRIBUTED TO ACCIDENT? In Blk a., indicate if individual made a mistake. If yes provide the code (from instructions) in Blk b. and describe in Blk c. | | | | | | | | | | | | | | | | | |
| a. Mistake <input type="checkbox"/> Yes <input type="checkbox"/> No | | c. Tell what the mistake was and how it caused/contributed to the accident | | | | | | | | | | | | | | | |
| b. Code | | | | | | | | | | | | | | | | | |

| | | | | | | | | | |
|---|--|--------------------------------------|---|-------------|---|---|---|--|---------|
| 37. WHY WAS THE MISTAKE MADE (ROOT CAUSE)(Check the root cause(s) in Blk a. In Blk b. tell how the root cause(s) led to the mistake.) | | | | | | | | | |
| a. | LEADER <i>(Not ready, willing to enforce standards)</i> | TRAINING <i>(Insufficient in)</i> | STDS/PROCEDURES <i>(Not clear/Not practical)</i> | | SUPPORT <i>(Shortcomings in type, capability, amount or condition of equip/supplies/services/facilities)</i> | | | INDIVIDUAL <i>(Mistake due to own personal factors)</i> | |
| | Direct Supervision | School | AR | SOP | Equip/Materiel improperly designed | Inadequate Manufacture | Poor/Bad attitude | Fatigue | |
| | Unit Command Supervision | Unit | TM | Other | Equip/Materiel not provided | Inadequate Maintenance | Overconfident | Alcohol, Drugs | |
| | Higher Command Supervision | Experience, OJT | FM | None exists | Inadequate Facilities/Services | Other | In a hurry | Fear/Excitement | |
| b. Describe root cause(s) <i>(reason)</i> and tell how it/they caused the mistake | | | | | | | 38. ENVIRONMENTAL CONDITIONS a. Present: #1 _____ <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk #2 _____ <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk #3 _____ <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk | | |
| 39. PROVIDE BRIEF SYNOPSIS OF ACDT <i>(Use additional sheets if required)(Explain sequence of events, tell how acdt happened.)</i> | | | | | | | | | |
| 40. CORRECTIVE ACTION(S) TAKEN OR PLANNED | | | | | | | | | |
| 41. POINT OF CONTACT FOR INFORMATION ON THE ACCIDENT | | | | | | | | | |
| a. Name (Last, First, MI) | | | | | | b. Telephone # DSN: _____ COM: _____ | | | |
| 42. COMMAND REVIEW a. Name | | | | c. Rank | | 43. SAFETY OFFICE REVIEW a. Name | | | b. Date |
| b. Signature | | | | d. Date | | | | | |

DA Form 285-R; Ground Accident Report

Completion instructions for DA Form 285, Ground Accident Report

Section A—Accident Information

Block 1. Check “initial” if this is the first report submitted on the accident. Check “change” if this report is a change or provides supplemental data for a previously submitted report of accident.

Block 2. Enter the six-digit unit identification code (UIC) for the specific organizational unit or activity responsible for the accident. Guidance on determining accountability for Army accidents is provided in AR 385–40, paragraph 1–6.

Block 3. For the unit/activity listed in block 2 provide the following data:

Block 3a. Name and full military address of unit.

Block 3b. The branch of the Army with which the unit is affiliated. Army branches are listed in table 4–2.

Block 4. Enter the year, month, and day of the accident in the appropriate blocks (e.g., 25 September 1993 would be shown as 930925).

Block 5. In local military time (24-hour clock), report the time the accident occurred. If unknown, estimate.

Block 6. Check the block that best describes when the accident occurred (day or night). Day is from first light to full night (dark). Night is from full night (dark) to first light.

Block 7. Check either on post or off post, depending on where the accident happened. (Note: On post includes all land under DOD control.)

Block 8. If the accident occurred on post, state the name of the post, government facility, or installation where it occurred (e.g., Fort Bragg, NC; Federal Center, Atlanta, GA).

Block 9. Check whether or not the accident occurred during combat. Combat should be checked if the accident occurred in a theater of hostile fire or enemy action, but not as a result of such fire/action. This includes direct preparation for combat, actual combat, or deployment from a combat theater immediately following combat.

Block 10. Check yes if explosives (C–4, TNT), ammunition, or pyrotechnics were present or involved. This does not include small arms ammunition, present only as cargo, that did not play a role in the accident. For example, if a vehicle is transporting artillery

ammunition/ explosives and is involved in an accident, “Yes” would be checked. If “Yes” is checked, the information specified in AR 385–40, paragraph 9–4, must be provided in Blocks 52, and 76 through 79. In addition, the following information will be provided:

1. Lot numbers, quantity, and net explosive weight (NEW) of all explosives and ammunition involved should be entered in blocks 76 and 77.
2. If the explosive/ammunition was exposed to significant environmental conditions, the environmental conditions should be checked in block 62, and an explanation of the conditions and their effect on the explosive/ammunition should be provided in block 63. Significant environmental conditions include the following: extremely high/low temperatures; electromagnetic environmental effects(E3) e.g, radiated energy (RFI) (such as being in close proximity to a radar site), electromagnetic energy (EMR), electrostatic energy or high voltage; water or high humidity; or prolonged exposure to direct sunlight.

Block 11. Give enough detail to describe the exact location of the accident. Provide the building number or direction and distance from closest landmark, grid coordinate, street or highway name/number, city or military installation, state and/or country. Also state the type of location, by choosing from the list below. Choose the type that best describes the location’s primary function. For example, a person injured in the kitchen or a private resident would be in “family housing,” not in a “dining facility.” Types of accident locations are listed in Table 4–3.

Section B—Personnel Information.

Complete this section for each individual involved (caused/contributed) and/or injured in the accident. If more than one person was involved, enter information on only one person on the initial form and use separate forms for each additional person, completing only sections A and B on these additional forms. Staple all forms together.

Block 12. Enter last name, first name, and middle initial of involved person.

Block 13. Enter the social security number (SSN) for the individual listed in block 12.

Block 14. Enter the age of the person listed in block 12.

Block 15. Check the appropriate block which reflects the sex of the individual listed in block 12.

Block 16. Enter the rank/pay grade of the individual listed in block 12 (e.g., SGT E5, CPT 03, GS-11, WG-8). Complete for all government personnel.

Block 17. Enter the full MOS/job series for the individual listed in block 12 (e.g., 54E20, 11B40, GS-301). For military MOS, give the full series number including the alphabetic character. For civilians, give the full job series number and include the pay plan (GS/WG). Do not give the job title.

Block 18. Provide individual's full official military address of assignment for all government personnel. If this address is not the same as that shown in block 3a, provide the unit UIC.

Block 19. Check the correct block to indicate the duty status of the person listed in block 12 (See glossary for definition of duty status). (This determination applies for safety accident reporting purposes only, and has no relation to compensability or line-of-duty decisions.)

Block 20. Check the appropriate block (for government personnel only) to indicate the current military flight status of the individual listed in block 12.

Block 21. State how many continuous hours this individual was on duty without sleep before the accident.

Block 22. Indicate how many hours of sleep (cumulative) this individual had in the last 24 hours before the accident. Note: Injury data. Blocks 23 through 30. If this person suffers more than one injury, report only the most severe injury. Information entered in blocks 25 through 30 should be taken from official documents such as DD Form 689 (Individual Sick Slip) for military personnel; DOL Form CA-1 (Federal Employee's Notice of Traumatic Injury and Claim for Continuation of Pay/Compensation); DOL Form CA-2 (Federal Employee's Notice of Occupational Disease and Claim for Compensation); DOL Form CA-16 (Authorization for Examination and/or Treatment) for DA civilian employees; and LS/BEC 202 for non-appropriated fund employees or information obtained through interviews with the injured person's doctor or hospital personnel.

Block 25. Enter the actual or estimated number of workdays this individual will be unable to perform all of his regular duties after going back to work (on light duty/profile).

Block 26. Check the block that indicates the severity of the injury to the person listed in block 12. If more than one applies, check the most severe.

Block 27. Select the classification (at the time of the accident) of the person listed in block 12 (for complete definitions consult glossary). Check only one block.

Block 28. For this individual's most severe injury, check the appropriate block(s) (no more than three) that indicate the cause of the injury/illness (the event that resulted in the injury/illness).

Block 29. Select the body part(s) most seriously injured (no more than three) and number them in order of priority (the most serious first). Enter the number(s) in the appropriate blocks next to the body part(s) they apply to. Be as specific as possible. NOTE: Disregard instructions on the form to check the appropriate blocks.

Block 30. For each body part numbered in block 29, place a corresponding number in the block that indicates the type of injury incurred by that body part (no more than three of the most serious). Be as specific as possible. For example, the number 1 used to indicate item o, Hand, in block 29 is also used to indicate item f, Fractures, in block 30, showing that the most serious injury was to the hand, which was fractured. NOTE: Disregard instructions on the form to check the appropriate blocks.

Block 31. Check the block that best describes the individual's activity/task at the time of the accident (e.g., physical training). Check only one block. If the person was engaged in more than one activity at the time of the accident, check the one most relevant to the cause of the accident. For example, a unit commander was preparing an after-action report while a passenger in a HMMWV. The HMMWV ran off the road and turned over. The unit commander was injured. The most relevant activity for the unit commander would be "Passenger." If block 31gg, Parachuting, is checked, complete blocks 76 through 79, using instructions for section H of the form. (See appendix I for explanation of activities.)

Block 32. Provide a short but descriptive explanation of the item checked in block 31. Note: For BLOCKS 35–35, the following definitions apply:

1. Tactical training. Training in a field environment that uses or develops combat, combat support, or combat service support skills.
2. Field exercise and tactical training. Begins when the individual reports to his primary duty location for movement to the field site and ends when he arrives back at the primary duty location from the field.

Block 33. Check yes if activity listed in blocks 31 and 32 was part of a field exercise. Indicate the name of the exercise (major and local field training exercise) if it has a name (e.g., Team Spirit, REFORGER, Gallant Eagle). Check no if activity was not part of a field exercise.

Block 34. Check yes or no to indicate whether the activity listed in blocks 31 and 32 was part of tactical training.

Block 35. If the individual was participating in any type of training, check the type of training facility being used at the time of the accident (see FM 25–2 for definitions). (If not applicable, leave blank.)

Block 36. If the individual was participating in any type of training, check the type of training in which he was participating. If unit training is selected, also indicate the type of unit training (platoon, crew, or individual). (If not applicable, leave blank.)

Block 37. Indicate how long it had been since the individual received training, before the accident, on the activity listed in blocks 31 and 32.

Block 38. Determine what protective clothing and equipment was required for the activity/task being performed. If protective clothing and equipment was required, determine if it was; available and used, available but not used, or not available. Check the appropriate blocks for each item of protective clothing and equipment to indicate availability and use/non–use. If no protective clothing and equipment was required, check the N/A (not applicable) column for each type of protective clothing and equipment.

Block 39. Indicate whether the individual listed in block 12 was properly licensed to operate the vehicle or equipment that he was operating at the time of the accident. Complete this block whenever operation of a vehicle or piece of equipment requiring a licensed operator is involved.

Block 40. Evaluate the actions of the person listed in block 12 and indicate whether or not, in your opinion, alcohol use on his part caused/contributed to this accident. In the space provided after the word unknown indicate test results, if available i.e., percent blood alcohol content (BAC), % BAC.

Block 41. Evaluate the actions of the person listed in block 12 and indicate whether or not, in your opinion, drug use on his part caused/contributed to this accident. Check none or indicate the type of drug suspected of being involved.

Block 42. Indicate if the person listed in block 12 was using a vision–enhancement device (night vision goggles, AN/PVS–5A, night vision device, thermal imagery, FLIR, etc.) at the time of the accident. If a vision–enhancement device was being used, specify type in block 42c and model number in block 42d, even if it did not contribute to the accident.

Block 43. Check the type of guidance (standard/reference), if it exists, that covers correct performance of the activity/task identified in blocks 31 and 32. In the space provided following the selected type of guidance, specify by name/number (e.g., FM 21–305, para 3c).

Guidance may be written in state/local laws, ARs, TMs, FMs, Soldiers Manuals, SOPs, directives, etc.

Block 44. Indicate if the activity/task was being performed in accordance with the guidance (standard/reference) specified in block 43. If the answer is no, complete blocks 45 through 47.

Block 45. Indicate whether the individual listed in block 12 made a mistake that caused or contributed to the accident. If the answer is yes, complete blocks 46 and 47. If the answer is no, skip to block 48.

Block 46. Provide a simple explanation of the mistake(s) made by the person listed in block 12 or explain how the activity/task was performed incorrectly. When describing mistakes, be sure to use one or more of the mistakes/errors listed at appendix B to identify the specific mistake(s) made by the individual. Include the results or outcome of the mistake(s). For example: The driver made an improper decision to back his M915 truck without a ground guide although one was required. As a result, his vehicle collided with a legally parked sedan. For on duty Class A and B accidents, requiring separate findings and recommendations, reference the finding number in this block.

Block 47. Identify why the mistake was made or the activity was performed incorrectly. What was the root cause of the mistake? Carefully consider deficiencies in system design, training, procedures, and command climate, as well as individual factors such as attitude, haste, and overconfidence. Appendix B contains explanations and examples of root causes. Check the most important root cause (reason) and explain in block 63. For on duty Class A and B accidents, requiring separate findings and recommendations and narrative of investigation, the root cause should be fully explained in the findings and supported in the analysis portion of the narrative, and referenced in Block 63.

Block 48. If the individual listed in block 12 was operating a vehicle, indicate how long he had been licensed to operate this type of vehicle before the accident.

Block 49. If the individual listed in block 12 was operating a vehicle, indicate total miles he had driven Army motor vehicles (include all Army motor vehicles) before the accident.

Block 50. Indicate the length of time the individual listed in block 12 had been in the unit shown in block 18 before the accident.

Block 51. Check the appropriate block to indicate which item from Section C "Property/Material Involved" was associated with the individual listed in block 12. This information is required to ensure that it can be determined who was operating/using/etc. each item of

property/ material involved in the accident. For example, PFC Jones was driving the “at-fault” tank; his name will be in block 12, and his vehicle will be item A in section C. Therefore, the correct entry for block 51 would be “Item A.” If the property/material associated with the individual will not be items A, B, or C, determine which letter will represent that item (see instructions for section C), check “Other” and specify the appropriate letter in the space provided.

Section C—Property/Material Involved.

Complete an entire column (e.g., column entitled Item A) filling in blocks 52 through 59 on each piece of property or item of equipment involved in the accident (whether damaged or not). If the property/material experienced a materiel failure/malfunction, also complete blocks 60 and 61. (Be sure the same column is used for all blocks.) Include Army and non-Army equipment/material, as well as equipment/material whose use or misuse contributed to the accident. Include up to three items of equipment on the initial form. Use additional blank sheets of paper for other equipment, if necessary, continuing letter sequence (e.g., D, E, F, and G). Each column will be used to provide information for one piece of equipment/material.

Block 52. Enter the type of property/material (e.g., sedan, truck, generator) involved in the accident. If explosives or ammunition were involved or present, enter the type of explosive/ammunition and the NSN.

Block 53. Enter the full military equipment model number and/or civilian make (e.g., M109A2, M60A2, Ford Taurus, M16 rifle). If explosives or ammunition were involved or present, enter the model number and DOD ammunition code (DODAC) or DOD identification code (DODIC).

Block 54. Indicate who owns the equipment/material.

Block 55. Enter the estimated cost of damage (ECOD) or actual cost of damage (ACOD) for each piece of property.

Block 56. Indicate whether a rollover protection system was installed. If rollover protection systems do not apply to the piece of equipment, check NA (not applicable).

Block 57. Indicate if this specific piece of equipment was being towed at the time of the accident. (Does not refer to post-accident towing of vehicles/equipment.)

Block 58. If the answer in block 57 is yes, indicate in which column (item A, B, C, etc.), the equipment doing the towing is listed.

Block 59. From the list provided on the form, select the type(s) that best describe the collision in which this property/material was

involved. More than one collision type might be appropriate for the property/material. If so, enter up to three in the blocks provided. If “Other” is selected, specify what type of collision in the space provided. If no collision was involved, leave blank. Note: If the property listed in blocks 52 and 53 experienced a materiel failure/malfunction that caused or contributed to the accident, complete blocks 60 and 61. Ensure the information is entered in the same column as the involved property. For example, if item A (blocks 52 and 53) experienced a materiel failure/malfunction, the information about that failure/malfunction should be entered in blocks 60 and 61 in the column entitled “Item A.”

Block 60. Complete items a through d for each component/part whose failure or malfunction contributed to the accident. Enter name/nomenclature of component/part in block 60c. Ensure an equipment improvement report/quality deficiency report (EIR/QDR) is prepared and submitted through appropriate channels for each component/part. Include EIR/QDR number in block 60e.

Block 61. Indicate how and why each component/part failed/malfunctioned by selecting from the lists provided on the form and entering the appropriate number in the blocks provided. Appendix B contains explanations and examples. In block 63, include an explanation of how the material failed/malfunctioned and the reason (root cause) for the failure/malfunction. For on duty Class A and B accidents, requiring separate findings and recommendations, the findings should fully explain the failure and cause.

Section D—Environmental Conditions Involved

Block 62. Check the appropriate blocks (no more than three) to indicate the environmental conditions present at the time of the accident. Also, check the cause/contributed block if the environmental condition caused or contributed to the accident and explain in block 63 how the environmental condition caused/contributed to the accident. For on duty Class A and B accidents, contributing environmental factors will be fully explained in the findings and analysis portion of the narrative.

Section E—Accident Description/Narrative

Block 63. For all accidents describe in detail the sequence of events that led up to and caused the accident. Explain how and why the accident occurred. Also include the information required in blocks 10 and 47. For on Duty Class A and B accidents, requiring separate findings, recommendations and narrative of investigation, reserve the findings and conclusions of the investigation board for the findings and analysis portion of the narrative. Also, enter a note in this block to

see the attached findings and narrative of investigation (see narrative out-line at paragraph 4–4).

Block 64. Provide the name (block 64a), rank (block 64b), title (block 64c), and telephone number (block 64f) of the individual who completed this report. Ensure the information is typed or printed legibly, and specify whether the telephone number is Defense System Network (DSN) or commercial. Also ensure the individual who completed the report signs and dates it in blocks 64d and e. For on duty Class A and B accidents complete Block 4, DA Form 285–B (U.S. Army Accident Report—Index B) and include with the report (see paragraph 4–7).

Section F—Corrective Action and Command Review

Note: The level of command review (company, battalion, division, etc.) is determined by either the MACOM or installation policy.

Block 65. For all accidents, excluding on duty Class A and B, fully describe all actions taken, planned, or recommended to eliminate, or at least reduce, the root cause(s) of this accident and prevent similar accidents from happening. Give details to explain the action as it relates to the root causes of the accident. Appendix B, Section III contains descriptions and examples of corrective actions. Identify the appropriate command level for completion of each action at unit-level, higher-level, DA-level. Actions may be directed for implementation at any command level and are not to be restricted by any current technology or budgetary, personnel, and/or equipment limitations. For on duty Class A and B accidents requiring separate findings and recommendations, reference the recommendation number in this block.

Block 66. Provide the name (block 66a), rank (block 66b), and telephone number (block 66e) of the unit commander. Ensure the information is typed or printed legibly, and specify whether the telephone number is DSN or commercial. Also ensure the commander signs and dates the report in blocks 66c and 66d as part of the review process.

Blocks 67 through 69. Provide the names (blocks 67a, 68a, and 69a), titles (blocks 67c, 68c, and 69c), and ranks (blocks 67d, 68d, and 69d) of the individuals in the chain of command who have reviewed this report. Ensure the information is typed or printed legibly. Ensure each individual in the chain of command signs and dates the report in blocks 67b and d, 68b and d, or 69b and d. For on duty Class A and B accidents, use Blocks 1 and 2, DA Form 285–O (Statement of Reviewing Officials), for reviewing official and approving authority comments, included at tab A of the report, and reference that form in this block. (See paragraph 4–8.)

Section G—Safety Office Use Only

This section is for local safety office use only and should be left blank by all other personnel. The safety office will complete this section on all accidents.

Block 70. Enter the local report number for this accident report.

Block 71. Enter the MACOM of the unit shown in block 2 (the unit responsible for the accident).

Block 72. Check the accident type(s) that best describe this accident. Check all that apply. Consult AR 385–40 for definitions. If Fratricide is the type of accident, declare it in block 63.

Block 73 through 74. Provide the name (block 73) and telephone number (block 74) of the local safety office point of contact for information about this report. Ensure the information is typed or printed legibly, and specify whether the telephone number is DSN or commercial.

Block 75. Enter the date the report was completed by the safety office (year, month, day).

Section H—Special Interest and/or Supplemental Information

This section is reserved for use by the U.S. Army Safety Center, MACOMs, or interested safety offices to obtain additional special interest and/or supplemental information on this accident as needed (e.g., M1 tank fires, tactical parachute accidents, etc.). Blocks 76 and 77 have been designated for collection of supplemental information on parachuting accidents and explosives/ammunition (from Blocks 31gg and 10.).

Blocks 76 through 79

a. If block 10 was checked “Yes,” enter the lot numbers, quantity and net explosive weight (NEW) of all ammunition and explosives involved or present.

b. If block 31gg, “parachuting”, was checked for any individual, provide the following supplemental information for each such person. Provide all information (items 1 through 16 below) first on one jumper and then on the next jumper until information on all jumpers involved in the accident has been included. Attach blank sheets as needed to provide required information. For definition of “Involved” see instructions for Section B Personnel Involved.

1. Name of jumper
2. Jumper height
3. Jumper weight

4. Type of jump: static line, non-tactical; static line, mass tactical; free-fall, non-tactical; free-fall, tactical
5. Type parachute and model
6. Jumper's equipment (list)
7. Weight of equipment
8. Wind direction and speed at:
 - a. Jump height
 - b. Drop zone
9. Jump altitude
10. Jumper's position in stick and door exited
11. Time pre-jump conducted
12. Date of last jump/type of jump
13. Number of previous jumps
14. Date graduated basic airborne training (year/month)
15. Type aircraft
16. Accident factors (Parachute): Improper exit, static line injury, broken static line, parachute malfunction, entanglement, lost/stolen air, oscillation, unstable position, dragged on DZ, tree landing, drop-zone hazard (specify), or other. Explain as necessary.

| | | | | | | | |
|--|--|---|--|--|---|---|--|
| U.S. ARMY ACCIDENT REPORT For use of this form, see AR 385-40, the proponent agency is OCSA | | | | FOR USASC USE ONLY | | Requirement Control Symbol CSOCS-308 | |
| SECTION A - ACCIDENT INFORMATION | | | | | | | |
| 1. CHECK ONE <input type="checkbox"/> a. INITIAL <input type="checkbox"/> b. CHANGE | | 2. UIC (Unit Identification Code) (6-Digit Code of Unit Having Accident) | | 3a. UNIT NAME AND MILITARY ADDRESS | | 3b. BRANCH (Armor, Infantry, etc.) | |
| 4. DATE OF ACCIDENT a. YR. b. MO. c. DAY | | 5. TIME OF ACCIDENT (Local Military Time) | | 6. PERIOD OF DAY (Check one) <input type="checkbox"/> a. Day <input type="checkbox"/> b. Night | | 7. ACCIDENT OCCURRED (Check one) <input type="checkbox"/> a. On Post <input type="checkbox"/> b. Off Post | |
| | | | | 8. IF ON POST, NAME OF INSTALLATION/FACILITY | | 9. ACCIDENT OCCURRED DURING (Check one) <input type="checkbox"/> a. Combat <input type="checkbox"/> b. Non-Combat | |
| 10. WERE EXPLOSIVES OR AMMUNITION INVOLVED OR PRESENT? <input type="checkbox"/> Yes (See Instruction Book) <input type="checkbox"/> No | | 11. EXACT LOCATION OF ACCIDENT (Detailed enough to locate site) (State type of location.) | | | | | |
| SECTION B - PERSONNEL INFORMATION | | | | | | | |
| 12. NAME (Last, First, MI) | | | 27. CLASSIFICATION AT TIME OF ACCIDENT (Check) | | 28. CAUSE OF INJURY/OCCUPATIONAL ILLNESS (Check the most serious) | | |
| 13. SOCIAL SECURITY NUMBER (SSN) | | | 14. AGE | | a. Struck Against | | |
| 15. SEX (Check) <input type="checkbox"/> a. Male <input type="checkbox"/> b. Female | | | 16. RANK OR GRADE | | b. Struck By | | |
| 17. MOS OR JOB SERIES | | | c. Army Contractor | | c. Fell from Elevation | | |
| 18. ADDRESS (Use Official Address for All Military or Government Personnel) (If different than block 3, add UIC.) | | | d. Nonappropriated Fund (NAF) | | d. Fell from Same Level | | |
| | | | e. Other U.S. Military | | e. Caught In/ Under/ Between | | |
| | | | f. ROTC | | f. Rubbed/abraded | | |
| | | | g. Dependent | | g. Bodily Reaction | | |
| 19. DUTY STATUS AT TIME OF ACCIDENT (Check one) <input type="checkbox"/> a. On Duty <input type="checkbox"/> b. Off Duty | | | 20. FLIGHT STATUS (Check one) <input type="checkbox"/> a. Yes <input type="checkbox"/> b. No | | 29. BODY PART(S) AFFECTED (Check primary) (No more than 3) | | |
| 21. CONTINUOUS DUTY (hrs.) (Without sleep) | | | 22. HRS. SLEEP IN LAST 24 | | a. Body (General) | | |
| 23. DAYS LOST (Est. no. of days lost from work; not counting day of injury. Bed rest/on quarters.) | | | 24. DAYS HOSPITALIZED (Est. no. of days hospitalized receiving treatment; not for observation only.) | | b. Head | | |
| 25. DAYS OF RESTRICTED WORK ACTIVITY (Est. no. of days person cannot perform regular duties; light duty/profile.) | | | i. NGB IDT | | c. Forehead | | |
| | | | j. NGB AT | | d. Eyes | | |
| | | | k. NGB ADSW | | e. Nose | | |
| | | | l. NGB AGR | | f. Jaw | | |
| 26. SEVERITY OF ILLNESS/INJURY (Check one) | | | m. NGB ADT | | g. Neck | | |
| | | | n. USAR IDT | | h. Trunk | | |
| | | | o. USAR AT | | i. Chest | | |
| | | | p. UAR ADT | | j. Heart | | |
| a. Fatal | | | q. USAR FTM | | k. Back | | |
| b. Permanent Total Disability. Person can never again do gainful work. | | | r. Foreign Nat. Direct Hire | | l. Shoulder | | |
| c. Permanent Partial Disability. Person loses or can never again use a body part | | | s. Foreign Nat. Indirect Hire | | m. Arm | | |
| d. Days Away from Work. Person misses one or more workdays; bed rest/on quarters. | | | t. Foreign Nat. KATUSA | | n. Wrist | | |
| e. Restricted Work Activity. Person is temporarily unable to perform regular duties; light duty/profile. | | | u. Foreign Mil. Attached to the U.S. Army | | o. Head | | |
| f. First Aid Only. Person has one-time treatment of minor injury. (No lost work days.) | | | v. Public | | | | |
| g. No Injury. | | | w. Not reported | | | | |
| 30. TYPE OF INJURY/ILLNESS (Check the most serious) | | | | | | | |
| a. Burns (Chemical) | | h. Abrasions | | o. Frostbite | | | |
| b. Burns (Thermal) | | i. Concussion | | p. Heat Stroke | | | |
| c. Amputation | | j. Sprain/Strain | | q. Heat Exhaustion | | | |
| d. Decompression Sickness | | k. Cuts/Lacerations | | r. Noise Injury/Illness | | | |
| e. Asphyxiation (Suffocation) | | l. Contusion | | | | | |
| f. Fractures | | m. Puncture Wound | | | | | |
| g. Dislocation | | n. Hernia, Rupture | | | | | |

SECTION B - PERSONNEL INFORMATION *(Continued)*

31. Person's action(s) at time of accident *(Check one and explain in Block 32.)*

| | | | |
|---|----------------------------------|--|---|
| a. Soldiering | j. Test/Study/Experiments | s. Fabricating | aa. Hobbies |
| b. Combat Soldiering | k. Educational | t. Handling Material/Passengers | bb. Passenger |
| c. Physical Training | l. Information and Arts | u. Janitorial/ Housekeeping/ Grounds Keeping | cc. Human movement |
| d. Weapons Firing | m. Food and Drug Inspection | | dd. Horseplay |
| e. Engineering or Construction | n. Laundry/Dry Cleaning Services | v. Food/Drink Preparations | ee. Bystanding/spectating |
| f. Communications | o. Pest/Plant Control | w. Supervisory | ff. Personal Hygiene/Food/Drink Consumption/Sleeping |
| g. Security/Law Enforcement | p. Operating Vehicle or Vessel | x. Office | |
| h. Fire Fighting | q. Handling Animal | y. Counseling/Advisory | gg. Parachuting <i>(See Instructions)</i> |
| i. Patient Care <i>(People/Animals)</i> | r. Maintenance/Repair/Serviceing | z. Sports | |

32. SPECIFIC DESCRIPTION OF ACTIVITY/TASK

33. ON FIELD EXERCISE *(Check one)*

- ☐ a. Yes *(If YES, specify name of exercise.)*
- ☐ b. No

34. ACTIVITY PART OF TACTICAL TRAINING?

- ☐ a. Yes
- ☐ b. No

35. Type of training facility being used *(Check one)*

- | | | |
|------------------------|---------|----------------------------------|
| a. Garrison | d. NTC | g. Std. range facility/live fire |
| b. Local training area | e. JRTC | h. Other <i>(Specify)</i> |
| c. Major training area | f. CMTC | |

36. Type of training participating in at the time of accident *(Check/specify)*

- a. School *(Specify)*
- b. UNIT \longrightarrow (1) Platoon (2) Crew (3) Individual
- c. On-the-job training d. Other *(Specify)*

37. Last time individual received training prior to accident on activity specified in block 31? *(Check one)*

- | | |
|------------------|----------------------|
| a. 0 - 3 months | e. 1 - 2 years |
| b. 3 - 6 months | f. More than 2 years |
| c. 6 - 9 months | g. Never |
| d. 9 - 12 months | h. Not applicable |

38. Required protective equipment

| CHECK APPROPRIATE BLOCK(S) | AVAILABLE? | | USED? | | N/A |
|----------------------------|------------|----|-------|----|-----|
| | YES | NO | YES | NO | |
| a. Seat belt | | | | | |
| b. Helmet | | | | | |
| c. Goggles/glasses | | | | | |
| d. Gloves | | | | | |
| e. Ear plugs | | | | | |
| f. Other <i>(Specify)</i> | | | | | |

39. INDIVIDUAL LICENSED TO OPERATE VEHICLE/EQUIPMENT? *(Check one)*

- ☐ a. Yes ☐ b. No ☐ c. N/A

40. DID ALCOHOL CAUSE/CONTRIBUTE TO THIS ACCIDENT? *(Check one)*

- ☐ a. Yes ☐ b. No ☐ c. Unknown

41. If drugs caused/contributed to this accident, check appropriate block.

- a. Prescription
- b. Illegal
- c. Over-the-counter
- d. None

42. Were vision enhancement devices being used? *(Check appropriate block.)*

- a. Yes *(Specify type/model in c and d.)*
- b. No
- c. TYPE d. MODEL

43. Standard/Reference covering activity/task

- a. Soldier's Manual *(Task No.)*
- b. CTT *(Task No.)*
- c. AR/TM/FM *(Specify)*
- d. SOP e. None *(Go to block 45.)*

44. WAS ACTIVITY/TASK PERFORMED IAW STANDARD/REFERENCE? *(Check one)*

- ☐ a. Yes ☐ b. No *(If NO, complete blocks 46-47.)*

45. DID INDIVIDUAL MAKE A MISTAKE? *(Check one)*

- ☐ a. Yes *(If YES, complete blocks 46-47.)* ☐ b. No

46. What was the mistake? How was the activity/task performed incorrectly? *(Explain below.)*

47. Why was mistake made/activity performed incorrectly? *(Check the most important reason and specify in Block 63.)*

- | | | |
|---|-----------------------------|---|
| a. Inadequate school training <i>(content/amount)</i> | f. In a hurry | k. Inadequate services |
| b. Inadequate unit training <i>(content/amount)</i> | g. Poor/bad attitude | l. Improper equipment design |
| c. Inadequate on-the-job training <i>(content/amount)</i> | h. Lack of rest/sleep | m. Inadequate written procedures <i>(AR, TM, SOP)</i> |
| d. Fear/excitement | i. Effects of alcohol/drugs | n. Improper supervision |
| e. Overconfident in own/others abilities | j. Inadequate facilities | o. Other <i>(Specify in narrative)</i> |

| SECTION B - PERSONNEL INFORMATION <i>(Continued)</i> | | | | | | | | | |
|---|--|--|--|---|-----|--|-----|-----|-----|
| 48. Time licensed on this vehicle <i>(Check one)</i> | | | 49. Total AMV driving mileage <i>(Check one)</i> | | | 50. Total time in unit <i>(Check one)</i> | | | |
| a. Less than one year | | | a. Less than 1,000 miles | | | a. Less than 6 months | | | |
| b. One to two years | | | b. 1,000 - 5,000 miles | | | b. 6 months - 1 year | | | |
| c. Over two years | | | c. 5,000 - 10,000 miles | | | c. Over one year | | | |
| d. Unlicensed | | | d. Over 10,000 miles | | | | | | |
| 51. WHICH ITEM FROM SECTION C APPLIES TO THE INDIVIDUAL NAMED IN BLOCK 12? <i>(This is needed in order to relate the person in block 12 to the equipment/vehicle below.)</i> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <input type="checkbox"/> Item A <input type="checkbox"/> Item B <input type="checkbox"/> Item C <input type="checkbox"/> Other <i>(Specify)</i> </div> | | | | | | | | | |
| SECTION C - PROPERTY/MATERIAL INVOLVED <i>(Whether Damaged or Not)</i> | | | | | | | | | |
| | | ITEM A | | ITEM B | | ITEM C | | | |
| 52. Type of item | | | | | | | | | |
| 53. Model number | | | | | | | | | |
| 54. Ownership <i>(DOD, DA, POV, Unit Person)</i> | | | | | | | | | |
| 55. Dollar cost of damage. | | | | | | | | | |
| 56. Rollover protection system installed? | | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA | | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA | | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA | | | |
| 57. Was this item being towed? | | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA | | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA | | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA | | | |
| 58. If towed, enter letter for item doing towing. | | | | | | | | | |
| 59. Types of collision codes <i>(Pick up to three from list below and enter in blocks.) (In sequence)</i> | | | | | | | | | |
| Types of Collisions <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> 1- Going forward and collided with moving vehicle 2- Going forward and collided with parked vehicle 3- Collision while backing 4- Collision with pedestrian 5- Collision with object (other than vehicle/pedestrian) 6- Overturned </div> <div style="width: 50%;"> 7- Ran off the road 8- Jackknifed 9- Going forward and rear-ended moving vehicle 10- Going forward and rear-ended parked vehicle 11- Collision while turning 12- Other <i>(Specify)</i> </div> </div> | | | | | | | | | |
| 60. Component/Part that Failed/Malfunctioned <i>(Complete this section if a materiel failure/malfunction caused/contributed to the accident.)</i> | | | | | | | | | |
| | | ITEM A | | ITEM B | | ITEM C | | | |
| a. National Stock Number | | | | | | | | | |
| b. Part Number | | | | | | | | | |
| c. Describe Part | | | | | | | | | |
| d. Manufacturer's Identification Code | | | | | | | | | |
| e. EIR/QDR Number | | | | | | | | | |
| 61. How/Why Part Malfunctioned <i>(Select code from "How" list below and enter in first block; select code from "Why" list and enter in second block.)</i> | | HOW | WHY | HOW | WHY | HOW | WHY | HOW | WHY |
| | | | | | | | | | |
| How Part Failed/Malfunctioned Codes 1- Overheated/burned/melted 2- Froze <i>(temperature)</i> 3- Obstructed/pinched/clogged 4- Vibrated 5- Rubbed/worn/frayed 6- Corroded/rusted/pitted 7- Overpressured/burst 8- Pulled/stretched 9- Twisted/torqued 10- Compressed/hit/punctured 11- Bent/warped 12- Sheared/cut 13- Decayed/decomposed 14- Electric current action 15- Unknown/Other Blank- Not Reported | | | | Why Part Failed/Malfunctioned Codes 1- Improper equipment design 2- Inadequate maintenance 3- Inadequate manufacture of equipment 4- Inadequate written procedures <i>(AR, TM, SOP)</i> 5- Improper supervision 6- Unknown 7- Other <i>(Specify in narrative)</i> | | | | | |

SECTION D - ENVIRONMENTAL CONDITIONS INVOLVED

62. Environmental conditions. *(Check environmental conditions present and indicate if condition caused/contributed to the accident.)*

| PRESENT | CAUSED/ CONTRIBUTED | CONDITION | PRESENT | CAUSED/ CONTRIBUTED | CONDITION |
|---------|------------------------|---|---------|------------------------|--|
| | | a. Clear/dry; visibility unlimited | | | k. Wind gust/turbulence |
| | | b. Bright, glare | | | l. Vibrate, shimmy, sway, shake |
| | | c. Dark, dim | | | m. Radiation, laser, sunlight |
| | | d. Fog, condensation, frost | | | n. Holes, rocky rough, rutted, uneven |
| | | e. Mist, rain, sleet, hail | | | o. Inclined/steep |
| | | f. Snow, ice | | | p. Slippery <i>(not due to precipitation)</i> |
| | | g. Dust, fumes, gasses, smoke, vapors | | | q. Air pressure <i>(bends, decompression, altitude, hypoxia)</i> |
| | | h. Noise, bang, static | | | r. Lightning, static electricity, ground |
| | | i. Temperature/humidity <i>(cold, heat)</i> | | | s. OTHER <i>(Specify)</i> |
| | | j. Storm, hurricane, tornado | | | |

SECTION E - ACCIDENT DESCRIPTION/NARRATIVE *(From blocks 10, 47)*

63. GIVE THE SEQUENCE OF EVENTS THAT AMPLIFY/EXPLAIN WHAT HAPPENED, LEADING UP TO AND INCLUDING THE ACCIDENT. *(Explain why accident happened.)*

| | | | |
|--|-----------|---|--------------------|
| 64a. PRINTED/TYPED NAME OF PERSON COMPLETING THIS REPORT | 64b. RANK | 64c. TITLE | |
| 64d. SIGNATURE | | 64e. DATE OF SIGNATURE <i>(YY/MM/DD)</i> | 64f. TELEPHONE NO. |

SECTION F - CORRECTIVE ACTION AND COMMAND REVIEW

65. DESCRIBE THE ACTIONS TAKEN, PLANNED, OR RECOMMENDED TO ELIMINATE THE CAUSE(S) OF THIS ACCIDENT *(from unit level up to HQDA)*.

66a. PRINTED/TYPED NAME OF COMMANDER

66b. RANK

66c. SIGNATURE

66d. DATE OF SIGNATURE
(YY/MM/DD)

66e. TELEPHONE NO.

a. TYPED NAME

b. SIGNATURE

c. TITLE

d. RANK/DATE

67.

68.

69.

SECTION G - SAFETY OFFICE USE ONLY

70. LOCAL REPORT NO.

71. MACOM

72. Accident type *(Check choice)*

a. Army Motor Vehicle

h. Other Army Vehicle

o. Personal Injury - Other

b. Army Combat Vehicle

i. Fire

p. Property Damage - Other

c. Army Operated Vehicle

j. Chemical Agent

q. POV - On Official Business

d. POV - Not on Official Business

k. Explosive

r. Space

e. Marine Diving

l. Missile

s. Commercial Carrier/Transportation

f. Marine Underway

m. Radiation

g. Marine Not Underway

n. Nuclear

73. NAME OF SAFETY POINT OF CONTACT *(POC)*

74. PHONE NO. OF SAFETY OFFICE POC
(AUTOVON, Commercial, Etc.)

75. DATE REPORT COMPLETED BY
SAFETY OFFICE *(YY/MM/DD)*

SECTION H - SPECIAL INTEREST AND/OR SUPPLEMENTAL INFORMATION

76.

77.

78.

79.

U.S. ARMY ACCIDENT REPORT Instructions

General. The unit having the accident must investigate it and complete this report. Complete the shaded portions **only** for: Military off-duty, non-fatal accidents; and military on-duty accidents resulting in less than 20 lost workdays. Accidents involving 20 or more lost workdays and/or total property damage of \$2,000 or more will require completion of the entire report. Type or legibly print the report. Items may be continued on a blank sheet of paper and attached to the report. Items listed below are keyed to the block numbers of DA Form 285, May 91. Items not listed here are self explanatory. Specific questions concerning this form should be referred to the local safety office.

SECTION A - Accident Information

Note: This section should be completed for the initial report and for any changes to a previously submitted report.

1. Check "INITIAL" if this is the first report on the accident. Check "CHANGE" if this report is a change to a previously submitted report of the accident.
2. Enter the 6-digit Unit Identification Code (UIC) for the unit responsible for the accident (e.g., WXXXXX).
3. Provide military unit information for the unit listed in Block 2.
 - a. Full military address (e.g., C Troop, 1/17 Cavalry, Ft. Bragg, NC 12345-6789).
 - b. Provide the unit branch (e.g., Armor, Infantry, Transportation).
4. Enter the year, month, and day of the accident (e.g., 90 11 07 {7 November 1990}).
5. Enter the military time the accident occurred (e.g., 0815, 2300).
7. Check either item *a* or *b*, depending on the location of the accident.
8. If item *a* is checked, state name of post or installation (e.g., Ft. Bragg, NC; Federal Center, Atlanta, GA; Ft. Hood, TX; Shaw AFB, SC).
9. Check item *a* if accident occurred in a theater of hostile fire or enemy action, but not as a result of such fire/action. This includes direct preparation for combat, actual combat, or redeployment from a combat theater.
10. Check "Yes" if explosives (C-4, TNT), ammunition, or pyrotechnics were involved and explain in Block 63 its involvement and specify the National Stock Number (NSN).
11. Give enough detail to find the exact location of the accident (e.g., building number, street or highway name, state and/or country). Also state the type of location (e.g., road intersection, tank trail, family housing, firing range).

SECTION B - Personnel Information

Note: Complete this section for each individual involved and/or injured in the accident. "Involved" means any person who was injured, or who took actions, or made decisions which caused or contributed to the accident. If more than one person was involved, enter information on one person on the initial form and complete only Sections A and B on additional forms for others. Staple all forms together.

16. Enter individual's rank/grade (e.g., E5/SGT, O3/CPT, GS-11, WG-8). Complete for all Government personnel.
17. Enter individual's full MOS/Job Series (e.g., 54E20, 11B40, GS-301).
18. Provide individual's full **Military** address for all Government personnel. If this address is not the same as that in Block 3a, provide the unit UIC.
21. State how many continuous hours without sleep this individual was on-duty prior to the accident.

22. Indicate how many hours of continuous sleep this individual had in the past 24 hours.

23. State the estimated number of days this individual will be away from work (*totally unable to perform any work, bed rest/on quarters*). Does not include days hospitalized.

24. State the estimated (*or actual*) number of days this individual is hospitalized (*inpatient/admitted*) receiving treatment. Days hospitalized for "observation only" are not reported.

25. State the estimated number of days this individual will not be able to perform his or her regular duties (*light duty, profile*).

26. Check appropriate block. If more than one applies, check the most severe.

28. For this individual's "most severe injury", check the appropriate block(s) (*no more than 3*) that indicate the cause of the injury.

29. **Number** the body part(s) most seriously injured (*no more than 3*) in their order of priority (*the most serious first*). Be as specific as possible.

30. For each body part numbered in block 29, place a corresponding number to indicate the type of injury received (*select only the most serious*).

31. Check the appropriate block that best describes the individual's action at the time of the accident. If Block 31gg is checked, complete Blocks 76 and 77 of Section H, as indicated by

32. Provide a short but detailed explanation of the item checked in Block 31.

Note: For this report, the following definitions apply:

Tactical Training - Training in a field environment that uses or develops combat or combat support skills.

Field Exercise and Tactical Training - This begins when the individual reports to his or her primary duty location for movement to the field site and ends when he or she arrives back at the primary duty location from the field.

33. Check "Yes" if activity listed in Block 31 was part of a field exercise. State name of exercise if it has a name (e.g., Team Spirit, Reforger).

42. If vision enhancement device(s) were used, specify type and model numbers, and whether they caused the accident (e.g., Night Vision Goggle, AN-PVS5A).

43. Provide standard or reference (*Soldier's Manual, AR, TM, etc.*), if it exists, that covers performance of the activity identified in Block 31.

46. Provide a simple explanation of the mistake(s) or how the activity or task was performed incorrectly (e.g., SGT Smith improperly backed his M915 truck without a ground guide).

47. **In your opinion**, why was the mistake made or the activity performed incorrectly? Check the most important reason.

51. Check the block corresponding to the piece of equipment associated with the person in Block 12 (e.g., SGT Adams was driving the "at-fault" HMMWV; his name will be in Block 12, and his vehicle will be Item *a* in Section C below).

SECTION C - Property/Material Involved

Complete Blocks 52-59 on each piece of property or item of equipment involved in the accident (*whether damaged or not*). Include Army and non-Army, as well as equipment whose use or misuse contributed to the accident. Include up to 3 items of equipment on the initial form. Use additional blank sheets of paper for other equipment if necessary, continuing letter sequence (e.g., A, B, C, D, and E).

52. Type of equipment (e.g., sedan, truck, generator).

53. Full military equipment model number or civilian make (e.g., M109A2, M60A2, Ford Taurus, M16 Rifle).

55. Estimated cost of damage (*ECOD*) or actual cost of damage (*ACOD*) for each piece of property, which includes costs of parts and labor.

57. Indicate if this specific item was being towed **at the time of the accident**.

58. If Block 57 is "yes", indicate which item was doing the towing.

60. Complete for each component or part whose failure or malfunction contributed to the accident. Include the EIR/QDR number in Block 60e.

61. Indicate how and why each component or part failed or malfunctioned by selecting from the lists provided and entering the appropriate number in the blocks provided.

SECTION D - Environmental Conditions Involved

62. Check the environmental conditions present at the time of the accident (*no more than 3*) by checking appropriate blocks, whether contributing to the accident or not. Also check whether they caused or contributed to the accident.

SECTION E - Accident Description/Narrative

63. Fully describe the sequence of events that lead up to and caused the accident. Explain how and why the accident occurred. Also include information required from Blocks 10 and 47.

SECTION F - Corrective Action and Command Review

Note: The level of command review (*Company, Battalion, Division, etc.*) is determined by either the major Army command (*MACOM*) or installation policy.

65. Fully describe all actions taken, planned, or recommended to eliminate the cause(s) of this accident. Actions should be identified as appropriate at unit level, and all the way up to HQDA level.

SECTION G - SAFETY OFFICE USE ONLY

71. MACOM responsible for this accident (*FORSCOM, TRADOC, etc.*).

SECTION H - Special Interest/Supplemental Information

This section is for use by the U.S. Army Safety Center, MACOMs, or interested safety offices to obtain additional "Special Interest/Supplemental Information" on this accident as needed (e.g., M1 tank fires, tactical parachute accidents, etc.). Blocks 76 and 77 have been designated for collection of supplemental information on parachuting accidents.

Blocks 76 and 77. If Block 31gg was checked, provide the following supplemental information for each individual:

- a. Name of jumper;
- b. Jumper height;
- c. Jumper weight;
- d. Type of jump (*static line, non-tactical; static line, mass technical; freefall, non-tactical; freefall, tactical*);
- e. Type of parachute and model;
- f. Jumper's equipment (*list*);
- g. Weight of equipment;
- h. Wind direction and speed at
 - (1) Jump height,
 - (2) Drop zone;
- i. Jump altitude;
- j. Jumper's position in stick and door exited;
- k. Time pre-jump conducted;
- l. Date of last jump and type of jump;
- m. Number of previous jumps;
- n. Date graduated from basic airborne training (*year and month*);
- o. Type of aircraft;
- p. Accident cause(s): Improper exit, static line injury, broken static line, parachute malfunction, entanglement, lost or stolen air, oscillation, unstable position, dragged on DZ, tree landing, drop zone hazard (*specify*), or other.

DA Form 285-W-R; Summary of Witness Interview

Completion instruction for DA Form 285–W, Summary of Witness Interview

Block 1. Self explanatory.

Block 2. Enter general occupation of the witness and duty being performed at time of the accident.

Block 3. Enter the grade of witness. Use codes from Table 4–3.

Blocks 4 – 6. Self-explanatory.

Block 7. List defense satellite network (DSN) number if applicable.

Block 8. Enter date(s) statement(s) was/were made.

Block 9. Enter a summary of experience, expertise, and back-ground in duty/MOS involved in the accident.

Block 10. Enter location of witness at the time of the accident relative to the accident.

Block 11. Enter grade and last name of person in charge of interview. If witness is interviewed by different persons in charge on separate occasions, list all interviewers in charge and prefix each name with “1st,” “2d,” “3d,” etc., to designate which interview session the interviewer conducted.

Block 12. Check the appropriate box to indicate if the witness was/was not offered a promise of confidentiality. Also, check the appropriate box to indicate whether or not the witness requested a promise of confidentiality. If “Yes” was checked, the interviewer must sign and date the confidentiality statement.

Block 13. Summary of interview, will be completed as follows:

1. Multiple interviews, same witness. Prefix the summary of each interview with the date and indicate if the statement is the 1st, 2d, 3d, etc.
2. Comprehensiveness. As a general rule, the interview summaries of persons involved/injured in the accident should be summarized in greater detail than the statements of others. This is because the personnel involved are the best source of information pertaining to the accident chronology of events. The chronology for the “history of events,” Narrative of Investigation (see paragraph 4–4), will most often be obtained from the personnel involved and should be used as a guide in determining what elements of information to include in the interview summaries. If human error appears to be involved in the accident, the mistake/errors and system inadequacy(ies) listed in the instructions for completing the

findings and recommendations (see paragraph 4–3) are useful for determining what should be addressed in the witness summaries.

3. Consolidating. When several witnesses, other than person(s) involved, provide essentially the same observations, it is not necessary to prepare a separate DA Form 285–W for each witness except for statements made with a promise of confidentiality. In cases where the summarized statements of several witnesses can be consolidated, it is appropriate to leave blocks 1 through 9 blank. In block 13, list the names of the witnesses and then summarize their collective observations.
4. Format. The proper format is a concise summary of information elements. An example is as follows: “This witness was a passenger (identify location of passenger) in the vehicle at the time of the accident.” His account of the accident essentially agreed with the “history of events” portion of DA Form 285–W. Additionally, he heard a grinding noise in the area of the right rear wheel, prior to the brake failure. In cases where such is essential, limited direct quotes of a witness (together with the specific questions they are in response to) may be used. This, again, should be done sparingly and only when necessary. It is important that the statement be the investigator’s summarization and not an exact verbatim transcript of what the witness said. The summary should be written in the third person (“The witness said,” “he said,”) and not the first person (“I saw,” “I heard”).

Block 14. Enter the date of the accident.

Block 15. Interviewer will read block 15a or 15b to each witness, depending upon the category and/or circumstances of the witness.

Block 16. Those witnesses which were offered a promise of confidentiality, must indicate acceptance or refusal by initialing the appropriate statement.

**U.S. ARMY ACCIDENT REPORT
SUMMARY OF WITNESS INTERVIEW**

For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA

*REQUIREMENTS CONTROL SYMBOL
CSOCS-308*

| | | | | |
|---|------------------------------|----------------------|--------|--------|
| 1. NAME OF WITNESS (LAST, FIRST, MI) | 2. OCCUPATION/TITLE | 3. GRADE | 4. SSN | 5. AGE |
| 6. ADDRESS (Include ZIP Code) (If military, include organization) | | 7. TELEPHONE NUMBER | | |
| | | 8. DATE OF INTERVIEW | | |
| 9. EXPERIENCE AND BACKGROUND | 10. LOCATION AT TIME OF ACDT | 11. INTERVIEWER | | |
| 12. Was a promise of confidentiality offered to the witness? <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, read blk 15a to the witness and complete blk 16. If no, read blk 15b to the witness.) Confidentiality was requested by the witness <input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, interviewer sign and date statement below.) | | | | |

THE WITNESS MADE THIS STATEMENT UNDER A PROMISE OF CONFIDENTIALITY.

Signature of Interviewer

Date

13. SUMMARY OF INTERVIEW

14. DATE OF ACCIDENT (YYMMDD)

15. GENERAL WITNESS INFORMATION BRIEFING (Interviewer must read appropriate instructions to the witness)

a. Promise of confidentiality offered.

- (1) This accident investigation board has been convened under the provisions of AR 385-40 for the purpose of conducting a safety investigation.
- (2) This may be just one of a number of investigations being conducted regarding this accident; collateral or legal investigations may be ongoing as well. Those investigations are entirely separate from a safety investigation and are also required to inform you of their purpose and of your legal rights.
- (3) This safety investigation is being conducted for accident prevention purposes only. Within the military, pursuant to Army Regulation 385-40, it cannot be used for any other purpose, to include any future disciplinary actions against any individuals. Therefore, the interview you are being asked to provide will be used by the Army in the interest of safety and accident prevention only.
- (4) Nonconfidential witness interviews may be released to the public pursuant to a Freedom of Information Act request. If you wish to protect your interview from public release outside the military, then your interview must be pursuant to a promise of confidentiality. Confidentiality means that your interview will not be released to the public or outside DOD safety channels.
- (5) Whether your interview is confidential or not, the chain of command will review the final accident report, which may include a summary of your interview, but the chain of command may only use the investigation report and the interviews for safety and accident prevention purposes.
- (6) If you ever have knowledge that your witness interview was used by the Army for anything other than accident prevention purposes (for example, disciplinary action against an individual), you should consult with your local Judge Advocate Defense Counsel Office and request that the Command Judge Advocate, U.S. Army Safety Center, be notified at DSN 558-3960 or commercial (205) 255-3960.
- (7) The promise of confidentiality is available to you if you desire it. Do you desire it?

b. No promise of confidentiality offered.

- (1) This accident investigation board has been convened under the provisions of AR 385-40 for the purpose of conducting a safety investigation.
- (2) This may be just one of a number of investigations being conducted regarding this accident; collateral or legal investigations may be ongoing as well. Those investigations are entirely separate from a safety investigation and are also required to inform you of their purpose and of your legal rights.
- (3) This safety investigation is being conducted for accident prevention purposes only. Within the military, pursuant to Army Regulation 385-40, it cannot be used for any other purpose, to include any future disciplinary actions against any individuals. Therefore, the interview you are being asked to provide will be used by the Army in the interest of safety and accident prevention only.
- (4) The chain of command will review the final accident report, which may include a summary of your interview, but the chain of command may only use the investigation report and the interviews for safety and accident prevention purposes. The interview summary may be released to the public pursuant to a Freedom of Information Act request.
- (5) If you ever have knowledge that your witness interview was used by the Army for anything other than accident prevention purposes (for example, disciplinary action against an individual), you should consult with your local Judge Advocate Defense Counsel Office and request that the Command Judge Advocate, U.S. Army Safety Center, be notified at DSN 558-3960 or commercial (205) 255-3960.

16. AVAILABILITY OF PROMISE OF CONFIDENTIALITY FOR "LIMITED USE" REPORT OF INVESTIGATION

a. Pursuant to AR 385-40, witness interviews may only be used within the military for purposes of accident prevention, and may not be used as evidence in connection with any administrative or disciplinary proceeding. This protection alone does not prevent release of the interview outside of the military (*to the public, newspapers, attorneys, etc.*) under the Freedom of Information Act. If you wish to protect your interview from release outside of the military, then your interview must be pursuant to a promise of confidentiality.

b. If you do not wish a promise of confidentiality, you may decline such below. In that case, your interview will still be used in the military only for purposes of accident prevention, but it may be released outside of the military in response to a Freedom of Information Act request. Please indicate which option you desire by initialing one of the choices below:

_____ I request a promise of confidentiality. I understand that the results of my interview will be used within the military only for the purposes of accident prevention, and will also be protected from public release outside of the military under the Freedom of Information Act.

_____ I decline a promise of confidentiality. I understand that the results of my interview will be used within the military only for purposes of accident prevention. I also understand that the results may be publicly released outside of the military under the Freedom of Information Act.

Name of witness (Print)

DA Form 285-O-R; Statement of Reviewing Officials

Completion instructions for DA Forms 285–O–R, Statement of Reviewing Officials

Block 1. The reviewing official(s) will indicate the official's organization and will:

1. State concurrence or nonconcurrence with the technical report. Any nonconcurrence will be fully explained.
2. Report actions taken as well as recommendations for additional action by higher headquarters or other Army commands. Attach, as enclosures to this form, copies of correspondence, forms, and other data requiring additional action.
3. Define those area(s) recommended for improvement/remedial action by the investigating board that are beyond the resources available to the command and so indicate in the forwarding endorsement to the approving authority.
4. Authenticate comments with signature and appropriate signature block at the close of each reviewing official's remarks.
5. Higher command reviewing official(s) will indicate the official's organization and enter the same information as (a) through (d) (above) as comment number 2, 3, etc.

Block 2. The approving authority will indicate his command and approval or disapproval of the report. Reasons for disapproval and/or additional actions directed will be reported. The approving authority will make note of those areas recommended for improvement/remedial action by the accident investigation board or reviewing officials on which action can or will be completed by the approving headquarters. If corrective action is beyond the purview or capability of the approving authority, this will be stated. For Block 2a, the approving authority's authentication will be entered.

Block 3 is reserved for USASC use. Block 3 will be completed by the USASC to show coordination/follow-up taken in response to recommendations requiring DA-level action.

Block 4. Enter the date of the accident.

U.S. ARMY ACCIDENT REPORT
STATEMENT OF REVIEWING OFFICIALS

For use of this form, see AR 385-40 and DA Pamphlet 385-40; the proponent agency is OCSA

REQUIREMENTS CONTROL SYMBOL
CSOCS-308

1. REVIEWING OFFICIALS COMMENTS

2. APPROVING AUTHORITY COMMENTS

a. Signature

3. DEPARTMENT OF ARMY REVIEW

a. Signature

4. DATE OF ACCIDENT (YYMMDD)

References

Official Publications

DODI 6055.7 DoD Accident Investigation, Reporting, and Record Keeping

AR 385-40 Accident Reporting and Records

DA Pam 385-40 Accident Investigation and Reporting

Other Resources Publications

US Army Safety Center Accident Investigation Guide

US Department of Transportation Aviation Accident Investigation Course of Instruction

US Army Aviation Safety Officer Course of Instruction

US Army Aviation Safety Officer List Server Resources